FEEDSTUFFS®

★ A WEEKLY NEWSPAPER ★

FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

Volume 30—Number 29 JULY 19, 1958 1 Year $4, 2 Years $7

Spot Soybean Meal Prices Continue To Show Increase

The foreign situation and continued strong feed industry demand pushed soybean meal prices higher during the past week.

Futures prices, under the pressure of the situation in the Middle East, shot up from $62.10 at the close July 11 to $71.50 by mid-day July 18. The climb of $9.40 for a week's period was said to be a near record.

Soybean meal for nearby Minnesota shipment during the same period rose from $62 bulk, Decatur, to $65.50. Unrestricted meal jumped from $69 July 11 to a range of $72 @75 bulk, Decatur, on July 18. No unrestricted meal appears to be available for nearby, and anyone with it could ask that price, a processor said.

He said the increase in prices is a combination of the world tension and the strong feed demand. "I think prices would have gone up without the Middle East trouble," he said. "I don't think you can credit the foreign situation with more than half of the rise."

July futures quotations show that soybeans have gone up almost 8¢ bu. during the past week. The price rose from $2.26 July 11 to $2.33½ July 18.

Other ingredients were also on an upswing in prices. The U.S. Department of Agriculture reported that for the week ending July 15, the average price of all ingredients at the main markets was up $1.60 ton from the previous week.

Vegetable and animal proteins led the upswing, the report said, followed by wheat millfeeds.

BENSON CAUTIONS ON HOG OVEREXPANSION

WASHINGTON — Ezra Taft Benson, secretary of agriculture, this week expressed gratification that farmers have not overexpanded hog production to date but quickly warned against overexpansion in the next 12 months. He referred in the first place to the June 20 U.S. Department of Agriculture pig crop report, which showed that the 1958 spring pig crop due to be marketed over the next seven or eight months was only about 2% larger than the 1957 crop. However, he noted the report further indicates farmers intend to have a fall crop 14% larger than a year earlier. He urged farmers to review production plans for the remainder of the 1958 fall pig crop period and pointed out the possibilities of increasing the 1959 spring pig crop too much. "Overexpansion leads to inefficient use of resources and low prices and incomes, as the experience of 1955 and several other years demonstrated," he said.

Market Bullishness Said To Be Only Temporary

By JOHN CIPPERLY

Feedstuffs Washington Correspondent

WASHINGTON — Grain prices were on the increase this week as the markets reacted to the international tensions in the Middle East and some thought of possible war or at least another Korean episode.

However, there is no evidence of such feeling here. The President appears to have called any bluff when the marines landed in Lebanon.

Grain market bullishness cannot be more than transient as it zooms markets since the Lebanon episode does not add one bushel of real demand for grain. The only commodities actually volatile to a war scare would be edible oils and oilseeds.

But here again there is a substantial supply on hand in the U.S., and supplies of Manchurian beans are pouring through the Suez at lower prices than beans of U.S. origin, according to trade reports.

Even in event of a repetition of a Korean episode, if the U.S. were caught in that position and were forced to move into price control areas, it is probable that the government in a "freeze" order would roll back prices to levels pre-dating the landing of the marines in Lebanon. On balance the whole outlook is bearish.

Some indices made available this week from top USDA officials indicated, for example, that the quantity of wheat not available for loan protection is now estimated at 400 million bushels.

Again touching on the zooming speculative commodity markets, whose misplaced enthusiasm over the Lebanon episode boosted commodities into new high ground, it must be noted that crop estimates and surplus supplies are at peak levels. Also it may be noted that USDA is slowly but perceptibly moving its corn export subsidy into lower ground.

The Commodity Stabilization Service director, Walter C. Berger, is now in the Argentine, particularly on the issue of U.S. corn subsidy prices, and since he has left the U.S., the government is softening its subsidy payment for corn which must be indicative of coming events.

(Turn to MARKET, page 102)

USDA Reviews Meat Animal Production, Price Outlook

By JAMES E. SHARON

Feedstuffs Staff

Prices for hogs, cattle and sheep marketed in the months ahead are likely to be built on a base which, according to a growing number of reports, begins to look like this: Hog production is beginning an uptrend; cattle production also is beginning a cyclical rise, and preliminary indications are for a small gain in lamb production.

Immediately foreseeable price indications, says USDA, are for gradually declining hog prices from now into fall, with fall averages expected to match or be slightly above last year. Nevertheless, prices are likely to retain at least an average relationship to feed prices. On beef, some further decline is expected on fed cattle prices this summer and fall, but some price recovery may come by the end of the year. For lambs, the outlook by USDA is for prices averaging close to last fall.

To detail the production-price combinations now showing up on these three meat animal groups:

HOGS: In its latest summary of the livestock and meat situation, the U.S. Department of Agriculture noted the 2% increase in spring pigs this

(Turn to OUTLOOK, page 99)

Iowa Farm Supply Considers Entering Feed Business

DES MOINES—The Iowa Farm Supply Co., affiliated with the Iowa Farm Bureau Federation, is currently considering entering the feed business in Iowa.

Voting delegates of the federation recently approved the company's going into the feed business, if and when the management of the company deems it feasible, said Howard Hill, president of the Iowa Farm Bureau Federation.

Mr. Hill said that various possibilities are being discussed in the company and with other cooperatives. However, he added, no definite plans for the feed business have yet been made.

The Iowa Farm Supply Co. has for some time been handling fertilizer, petroleum, animal health products, paints and other items. Mr. Hill said that recently approved was a program including seed, twine and pole buildings which will be furnished to the local service companies, affiliated with local Farm Bureaus.

Now, with authorization from voting delegates of the Iowa federation, officials of the Iowa Farm Supply Co. are discussing various possibilities in connection with the feed business.

"Cooperative" Integration, Adverse Egg Publicity Discussed at Poultry Meeting

ITHACA, N.Y.—Topics discussed at the recent poultrymen's "Get-Together" at Cornell University included "cooperative" integration in egg production, adverse egg publicity, poultry nutrition advances and the nutritive value of turkey meat.

Prof. Frank D. Reed, poultry specialist at the University of Maine, told the 600 poultrymen attending the meeting that he does not see vertical integration or contract farming of the type now dominant in the broiler industry as becoming a very big factor in the operations of New York State egg producers.

"We may, however, see quite a few small deals in which a successful poultryman may have some of his birds on contract farms, and there will be a small amount of this type of contracting by hatcheries," he declared.

Prof. Reed said egg producers can look for "cooperative integration" whereby poultrymen would operate as independents, but would have marketing agreements with handlers. "Quality control and some regulation of production will be features of these agreements," he predicted.

The poultry specialist said he does not think cooperative integration means "loss of independence."

(Turn to INTEGRATION, page 103)

FEEDSTUFFS *Features This Week*

ROLE OF BUYER: Another in a series of "Golden Year" features finds Eldred Cayce discussing the role of the buyer. See **Page 10.**

FATS IN FEEDS: The rapid growth in the use of fats in feeds is detailed on **page 28.**

MILL OPERATIONS: The operations of an Illinois feed mill are described on **page 18.**

FEED CONTROL: In an article on **page 34**, a feed manufacturer's quality control director takes a look at certain regulations.

CREDIT: A banker offers some credit policy guides for the feed industry on **page 48.**

NUTRITION: Progress in feeding broilers is outlined on **page 40.** Turn to **page 94** for a discussion of formulation and manufacture of dog foods. Research on grain sorghum palatability for poultry is reported on **page 58.**

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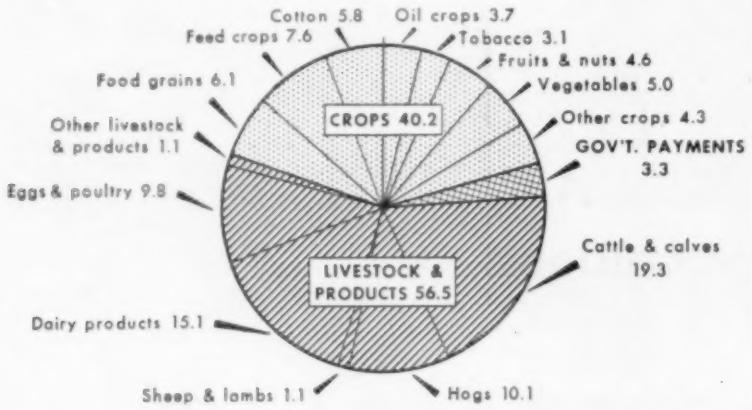
A Large Slice

HERE'S A NEAT pie chart that sums up about as well as anything the importance of livestock and poultry production to the nation's farm economy. The chart, provided by the Agricultural Marketing Service, U.S. Department of Agriculture, indicates farm cash receipts during 1957, by commodities as a percentage of total receipts.



Farmers' cash receipts from commodities and government payments (the latter a sizeable total of $1,016,000,000) were $30.8 billion last year. Receipts from all livestock and products, including eggs and poultry, were $17.4 billion. This, as the chart shows, was well over half of all farmers' cash receipts. Actually, livestock have provided more than half of cash receipts each year since 1934, with a gain in meat animals more than offsetting a decline in the relative importance of dairy products.

Cash receipts from farm marketings of meat animals totaled $9,389,000,000 in 1957, 13% more than in 1956. Dairy products contributed $4,651,000,000 to the total, and poultry and eggs, $3,001,000,000.

USDA EXPLAINS that while livestock and livestock products made up more than half of farmers' cash receipts, this does not mean that they exceed crops in value of production. Income received from sales of livestock represents the value of feeds fed as well as the value of all other items in production. Therefore, on farms where crops are fed to livestock rather than marketed, the value of feeds might well be credited to crop output. USDA calculates that on the basis of the value of production to which the value of farm-grown feeds is so credited, livestock and livestock products accounted for around 30% of the value of farm output.

THERE IS REALLY no necessity to slice the pie differently, however, to make the point that animal agriculture is a bulging industry and that industries serving it are dealing with a market that offers exceptional potential for development.

"Agriculture appears to be swimming quite successfully against the tide of the recession," the Corn Belt Farm dailies observed recently. "A number of indicators reveal the improvement in the livestock farmer's position. His crop prospects are good. Livestock is making money. The farm machinery business is active on both new and used machines. More farmers are buying prepared livestock feeds. More fertilizer and such service items as animal health products are being sold. And banks report that farmer holdings of time deposits are up sharply over 1957."

Many midwestern communities, particularly those whose economy is based largely on crop and livestock production, have in no sense felt the effects of the recession, the farm newspapers comment, and early predictions are that farm income this year could run 5 to 10% higher than last year.

AT APPROXIMATELY the mid-point of 1958 it seems reasonable to continue to hope for an over-all increase in feed business of about 10% for the year as was predicted at the start of the year. The alert feed companies appear to be maintaining about that level of improvement, and with continued close attention to all sales opportunities some good earnings can be racked up in the coming months, too.

A FEEDSTUFFS FORMULA FEEDS: HOW'S BUSINESS? FEATURE

The midsummer slump usually experienced in the feed business has not yet arrived this week and feed manufacturers were beginning to believe it may hold off until sometime next month. Although prices of ingredients and finished feeds were on the increase, feeding ratios continued favorable. Broiler prices were off slightly, but the drop in broiler feed demand was not great as yet. Chick placements were down, however. Prices for the coming week were expected to be sharply higher, particularly on high protein feeds, because of the swiftly rising ingredient market. The feedstuff price index advanced to 88.4 for the week, compared with 86.2 the previous week and 76.6 the same week last year. The feed grain index went up to 72.6 as against 71.4 the week before and 74.1 a year earlier. (Ingredient price details on pages 100-102.)

Northwest

Already good feed business was even better this week, according to reports from mill representatives. They said the increase came at a time when they might normally expect a decline in volume, and they now are optimistic that good demand will continue through the month.

One representative, however, said that the backlog of orders moving into next week was not quite so good as it was a week earlier.

Hog feeds, which have been the big seller for several months continued to move at a very strong pace. Broiler and turkey feeds were also reported to be moving very well. Poultry feeds generally were said to be good.

The week's good demand had several mills running with extended shifts.

Price lists for next week will show sharp increases, the representatives said. For the first time this year, however, none of them mentioned the possibility of resistance to the prices. They said it is becoming apparent that feeders are beginning to watch the market and are more aware of the feed market situation than ever before.

Southwest

Sales activity was termed good to very good by most dealers in formula feeds this past week.

The trend generally was attributed to the crisis in the Middle East. Others felt the trend was set by soybean meal, well in advance of the foreign situation.

Turkey and hog feeds seemed to be in greatest demand. Dealers said the upturn was normal for this time of the year.

Chick starters, dairy and cattle feeds continued to show declines in sales. Broiler feeds may be slipping a little because of the decline in broiler and egg prices, some observers said.

Weather in many areas had a bullish influence on feed sales. Flooding conditions caused grass to lose its protein value, demanding feed supplements to carry feeding programs.

Running time ranged from five to six days, with most mills operating two shifts. Order backlogs were considered good. Prices were up 40¢ to $3 in sympathy with the current demand.

Protein feeds, in particular, were in demand because of a limited supply. Continued strength in prices was indicated by all dealers.

Northeast

Sales were generally "pretty good" and as a result the mills were at full capacity for a full 40-hour work week. Poultry feed volume spotlighted the market. Egg mashes, broiler feeds and turkey feeds followed. Dairy feed sales were not good as the area has more than an ample supply of lush pastures with all the rain.

Milk prices showed no change and eggs were about steady in the east. Western eggs were about 1¢ doz. lower. New England broiler prices showed no change. Prices for broilers ranged from 19 to 21¢ lb.

The price of commodities was upset by the Mideast news and the market showed lots of activity. Clarification of the Mideast situation probably will determine whether the market will settle down or not.

Corn was 2 to 3¢ bu. higher with oats unchanged. Barley was up 1¢ and feed wheat off ½ to 1¢. Molasses was unchanged. The market was firm but unchanged for animal fats and tallow.

Soybean meal was $3 to $4 higher. Linseed oil meal was up 50¢. Cottonseed oil meal and gluten meal were unchanged from last week.

Meatscraps continued to rise on short supplies and were up $5 from a week ago. Fish meal was unchanged to $1 to $2 lower.

Hominy feed was off $1. Distillers grains were unquoted. Brewers grains were scarce and unchanged. Gluten feed showed no change and alfalfa was available at $49 to $55 ton.

Southeast

Feed business remained good this week. Feeding operations as a whole have exceeded expectations so far for the spring and summer months. Good prices for poultry and livestock, coupled with weather conditions, seem to be the primary reasons for the present healthy condition of feeding operations.

Broiler markets have declined about 2¢ lb., and this has caused a noticeable reduction in baby chick placements, although in the north Georgia producing area this figure still runs about 10% more than the same week last year.

Feed prices are still going up each week in order to compensate for particularly the almost sensational rise in the cost of soybean meal, which has given added strength to other protein materials. Producers of protein meals in the territory report to be sold out at least for the nearby position.

Most available supplies have been coming from resellers, and even at that, supplies are reported to be limited and strong in price. The serious roughage problem in the Southeast is still existent and buyers are hard pressed in most instances to obtain their minimum requirements. Purchasing agents for feed manufacturers have taken to the sideline wherever possible. However, with demand at present levels, they are finding it necesasry to constantly replenish inventories which have been used up quicker than had been anticipated.

The month of July so far is reported to be one of the wettest on record in the territory, and there is some concern regarding weed control and boll weevil activity, both of which are difficult to control in wet weather. According to cotton acreage figures, and an average yield, it is expected that the southeastern cotton crop this year will be approxi-

(Turn to MARKETS, page 105)

Seldom mentioned - always present

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Michigan Elevator Career Day Gets Large Attendance

EAST LANSING, MICH. — Sixty-three farm youth were challenged here recently to reach for real opportunities in agri-business lines, so that full advantage of their farming experiences can be utilized.

Making the challenge was Charles Force, first vice president of the Grain & Feed Dealers National Assn. He spoke at the annual Elevator Career Day held here. The 63 young men had registered for the day.

They were told about the elevator and farm supply course offered by Michigan State University and about career opportunities in the trade. Forty-five of them took course applications.

Mr. Force and Ray Bohnsack, director of the Michigan Feed & Grain Dealers Assn., spoke at the noon luncheon. Group counseling sessions were held following the luncheon program.

George Greenleaf, coordinator of the Elevator and Farm Supply short course, announced that 120 young men have graduated from the program in the 12 years of its operation. He said there are presently 24 young men in country elevators taking the "on-the-job" phase of the training. He said a class of about 35 new students is expected to enroll in the course, which begins Sept. 29.

An honored guest was Pete Stallcop, secretary of the Northwest Country Elevator Assn., Minneapolis. Ten companies and organizations which have given scholarship aid to the program over the years were also honored. The company representatives and the companies are as follows:

J. R. Bliss, Michigan Elevator Exchange, Lansing; Maynard Brownlee, Farm Bureau Services, Lansing; Charles Force, Little Brothers, Kalamazoo; Clinton Fitch, Michigan Millers Mutual Insurance Co., Lansing; Gary Marshall, Lansing Grain Co.; Nevels Pearson, Michigan Grain & Feed Dealers Assn., Lansing; Guy Rench, Andridge Memorial Scholarship, Lake City; Alfred Roberts, Pigeon (Mich.) Cooperative Elevator Co.; Fred Rowe, Valley City Milling Co., Portland; Fred Wolters, McMillen Feed Mills, Albion.

These people and the organizations they represent have helped nearly 100 men graduate from the program of study.

Anyone interested in the course or information on it should write to George Greenleaf, coordinator of the elevator course, Short Course Dept., Michigan State University, East Lansing.

English Grain Aphid Found in Montana

BOZEMAN, MONT.—The appearance of the English grain aphid has caused more confusion than damage so far in the triangle area north of Great Falls, says George Roemhild, assistant state entomologist at Montana State College.

According to the entomologist, partly-filled heads of grain are the result of a late frost and not English aphid damage.

Aphids thrive under the cool, damp conditions the state has been experiencing the past month, but they're not yet thick enough to cause appreciable damage. It takes 20 to 30 aphids per head to injure the grain.

However, more wet weather could result in increasing numbers of aphids and crop loss. On the other hand, a period of warm, sunny weather would lessen the threat to such crops as winter and spring wheat, barley and oats.

Monsanto Announces MHA Price Reduction

ST. LOUIS—The Monsanto Chemical Co. has announced a reduction of 28% in the price of MHA, its trademarked synthetic protein supplement for poultry and animal feeds. The reduction was effective July 15.

Monsanto officials attributed the price cut, from $2.05 per pound to the present $1.48 per pound in truck lots, to substantial increases in production volume of the product introduced by the firm in 1954.

"The increased use of MHA (methionine hydroxy analogue, calcium) has resulted from new concepts of protein supplementation in broiler feeds developed by Monsanto research and being put into wide practice by the feed industry," the company announcement said.

There has been a 33% increase in the use of methionine supplementation by feed formulators in 1958 over the same period last year, Monsanto said. Much of the increase, company officials added, "has been the result of Monsanto research findings which confirmed the vital role of amino acids in maximum growth performance from feeds."

"The push for better feed efficiency has been accompanied in the feed industry by a strong trend toward the use of synthetic nutrients such as Monsanto's MHA and less dependence upon natural sources of such nutrients highly variable in price and quality," company officials said.

"Natural feed ingredients tend to increase in price as increased demand for them creates scarcities. In contrast, synthetic ingredients tend to decline in price as increased usage makes possible the economies of large-volume production.

"In reducing the price of its MHA by 57¢ per pound, Monsanto not only proves this point for the synthetics but considerably broadens the market potential for the product."

Integration Will Come To Animal Agriculture, Speaker Tells Group

NEW BRUNSWICK, N.J. — Integrated farming will come to animal agriculture, according to Dr. W. P. Garrigus, head of the department of animal industry of the University of Kentucky and vice president of the American Society of Animal Production.

Dr. Garrigus addressed the North Atlantic section of the society at a recent meeting in New Brunswick. Members discussed scientific data during an all-day session and heard Dr. Garrigus following a banquet in the evening.

Many producers seem to think that contract farming, or integrated farming, is for vegetable growers or poultrymen but not for them, Dr. Garrigus said. Yet he predicted that it will come, stating that resistance is fighting efficiency.

"Size doesn't always mean increased efficiency, but it often helps," he added.

Integration will use less land, less labor and will provide better use of capital, he said. However, Dr. Garrigus recommended making shifts gradually so "we know we're going in the right direction."

Regardless of how you feel about integration, he said, the only path to follow is to try to produce a better product at less cost.

During a business meeting, the North Atlantic section elected Dr. Willard W. Green, head of the department of animal husbandry of the University of Maryland, president, and Dr. Al Cowan, chairman of the department of animal industry of the University of Connecticut, vice president. Prof. George W. Vander Noot, chairman of the department of animal husbandry of Rutgers University and retiring president, was chosen secretary-treasurer.

Dr. Steven Nemeth — Thomas Butler

RESEARCH STAFF—Dr. Steven B. Nemeth and Thomas D. Butler have been added to the research staff at Hubbard Milling Co., Mankato, Minn. They will assist George Patrias, director of research and nutrition for the firm. The appointments were announced by Ogden P. Confer, vice president and manager of the company's feed division. Dr. Nemeth, who fled his native Hungary with his wife and small son on Jan. 4, 1957, a few months after the student uprising in Budapest, arrived in America last August. A graduate of the University of Budapest in 1946, he received his Ph.D. in animal breeding from that institution in 1949. Mr. Butler, a native of Red Oak, Iowa, is a recent animal husbandry graduate of Iowa State College.

San Francisco Grain Exchange Announces Committee Members

SAN FRANCISCO—The board of directors of the San Francisco Grain Exchange recently appointed exchange committees for 1958-59.

Chairman of the rules committee is Paul Taylor, General Mills, Inc. Other committee members are P. Bimmerman, Balfour, Guthrie & Co.; John Flanagan, E. C. Horst Co.; E. L. Iverson, California Milling Corp.; C. C. Schilthuis, Continental Grain Co., and L. W. Sperring, Poultry Producers of Central California.

E. C. Hansen, W. H. Allen Co., is chairman of the legislative committee. Others are E. H. Durr, Golden Eagle Milling Co.; John Flanagan; Sam Mateer, Wilkinson Grain Co.; and E. R. Warren, Warren Grain Co.

Inspection and Traffic

The inspection and traffic committee is headed by John Flanagan. Completing the committee are William Drum, Cargill Incorporated; P. Bimmerman; R. G. Stevenson, Stevenson & Sons, and R. F. Welch, W. A. Siebert Co. Mr. Welch is also chairman of the membership and publicity committee. Other members of that committee are Ivan Brown, Wilkinson Grain Co.; J. Gervasi, Continental Grain Co.; E. L. Iverson; E. J. McCarthy, Battaglia-Frey, Inc.; J. C. Morgan, Balfour, Guthrie & Co., and Edmund Huebner, exchange manager.

R. L. Wilson, Wilson & Beedy, heads the price settling and floor committee. Others are Harry Clow, A. H. Ascherman, Inc.; J. Gervasi; E. J. McCarthy, and A. P. Christiansen, General Mills, Inc.

Poultry Grower Builds Mill in Mississippi

FOREST, MISS.—The installation of a new $25,000 feed mill with a capacity of more than 80 tons daily has been completed by C. J. Lackey at his poultry farm property just west of Forest. The mill will furnish feed for Mr. Lackey's 90,000 birds and the 300,000 being fed under contract arrangements by Red Hat Feed Co.

J. D. Sorey, manager of Red Hat, said he hopes to increase production of birds to around 500,000 or more, with the new mill providing feed for the expanded operation.

Roy Burns is manager of the mill.

Iowa Hogs Score 2.77 Conversion

NEVADA, IOWA—A group of 30 meat-type boars just off tests at the Iowa Swine Testing Station near here appear to have set a new high average index for the station by averaging only 277 lb. of feed consumed per 100 lb. of gain.

Dr. Ralph Durham, Iowa State College swine breeding specialist and technical director of the station, said the average index of these boars was 133, above any previous average index for production-tested boars sold at the station.

The 30 boars which set this exceptional feed conversion figure are among 70 expected to be off test in time for sale July 22 at the local fairgrounds in Nevada, starting at 8 p.m. Plans also call for a "hog college" session at 4 p.m. before the sale to give producers information about the tested boars offered at the sale, how to use the figures behind the test index to select a boar to fit the needs for a particular herd, and about feeding, breeding and management techniques for efficient production of quality pork.

Dr. Durham said the rapid rise in quality of boars at the station indicates the speed at which Iowa swine breeders are developing high-producing, meaty strains of breeding stock with the aid of central and on-the-farm testing.

He also reported that barrows from the same test pens as the boars to be sold, dressed out an average of 51.7% lean cuts of meat. All but one of these pens averaged over 200 lb. a head at five months. One pen averaged 214 lb. at four months and eight days. One consignment of boars farrowed Feb. 16 weighed 217 lb. June 23.

Slat Broiler House Tested in Mississippi

FOREST, MISS.—The first slatted broiler house built in Scott County has proved itself "in winter and is showing up well in the early summer," according to Charles W. Sanders, county agent.

The slat house, developed in the Texas broiler areas, was introduced several years ago in the north Mississippi area by Ray Purnell at Tupelo, and from the interest developed there, it was apparent that the building would find favor in other broiler sections as well.

The first house in Scott County, among Mississippi's top broiler producing areas, was built next to two conventional houses. Instead of the curtains from top down to within 3 ft. of the floor, he used vertical slats of one-by-fours, with a 1-in. crack between.

The slats are made in 6-ft. sections and are hinged at the top, thus providing better ventilation without drafts.

Day-old chicks were set out last winter when the temperature was below 20°. Yet they had a lower mortality rate than in the two adjacent houses.

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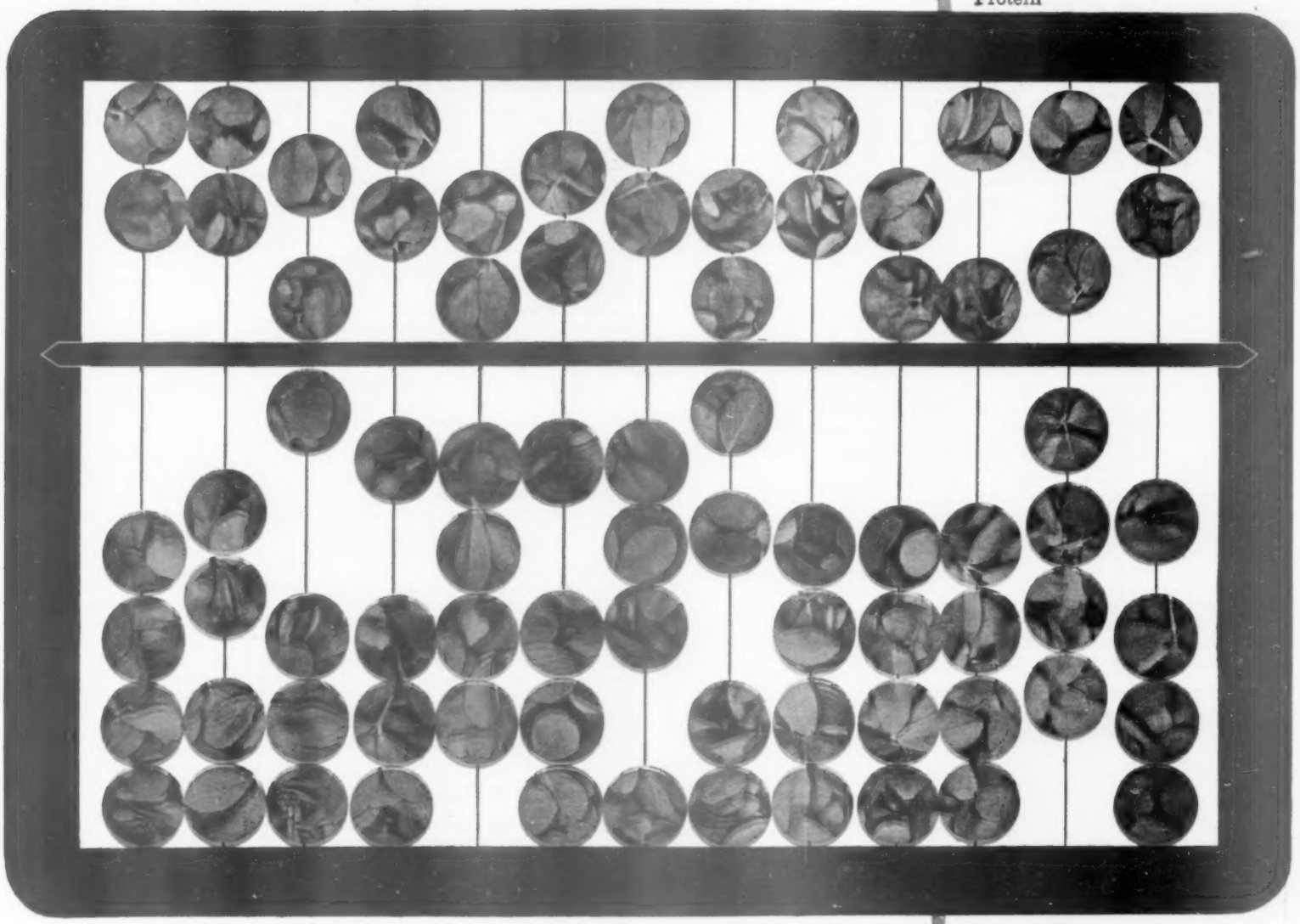

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Researchers Report Feeding Studies at Western Meeting

DAVIS, CAL.—Recent animal feeding studies in the western states came in for attention this week as scientists gathered at the Davis campus of the University of California. The occasion was meetings of the western divisions of the American Society of Animal Production and the American Dairy Science Assn.

Researchers from western institutions reported on studies of feed additives, pelleting and other developments in cattle feeding. Also, there were reports on dairy feeding studies, swine nutrition work and lamb feeding projects.

Following are summaries of the reports.

BEEF CATTLE: Several reports were presented on beef cattle research.

Additives: Adding Aureomycin or stilbestrol to steer calf diets during the winter boosts feed efficiency and lowers cost of gain, reports Colorado State University scientists. One group of steers receiving stilbestrol, compared to steers receiving no additives, required 165 lb. less feed per 100 lb. of gain, and their feed cost per 100 lb. of gain was cut by 73¢, said Prof. Ford C. Daugherty. A group that received Aureomycin needed 147 lb. less feed, and feed cost was reduced by 63¢.

"In all three years of the trial," said Prof. Daugherty, "the Aureomycin group showed more bloom and a more healthy, vigorous appearance than any of the other lots. But the stilbestrol-fed group showed the greatest gains and made the most profit," he added.

The control lot of steers received 2 lb. of hay and 1 lb. of soybean meal per head daily, plus cane silage. Ten mg. of stilbestrol per steer per day was added to this ration for the second group. Fifty mg. of Aureomycin per steer per day was added to the diet of the third group.

Forage Quality: In fattening steers, the quality of forage is more important than the form in which it is fed, according to I. A. Dyer, Washington State College. He said that high-quality roughage is needed for a high rate of gain by beef steers. Results of a feeding trial with rations varying from all alfalfa hay to all straw (with concentrates added) showed that rates of gain increased in proportion to the amount of alfalfa hay in the ration.

All concentrates in the ration were pelleted, and the roughages was pelleted for two groups of steers and chopped for four other groups. The all-pelleted ration resulted in faster gains than a ration in which only concentrates were pelleted.

According to the Washington scientist, when wheat straw replaced alfalfa hay, rates of gain were reduced by .59 lb. per animal per day and efficiency was cut by 24%. The quality of roughage affected the digestibility of the ration, and therefore the rate of gain.

Holstein Steers: Raising Holstein steers for beef can be profitable, and adding stilbestrol to the feed can increase the profits. Gerald Ward, Colorado State University, reported that stilbestrol-fed steers gained at the rate of 2.4 lb. per day, while a control group gained 2.1 lb. per day. The average return above feed costs, he said, was $35.70 per head for the stilbestrol group, and $22.91 for the controls.

In the experiment 16 Holstein steers were divided into two groups. Animals in each group averaged 377 lb. and five months of age. Alfalfa hay, corn silage and a grain ration were fed to each group at the rate of about 12 lb. per day.

Weights of the two groups held even for the first 60 days. Final weights after 278 days on the test, however, showed the stilbestrol-fed group made better over-all gains. All animals graded U.S. Standard, and the percentage of wholesale cuts was essentially the same for both groups. Carcass tests showed the same amount of fat in the two groups, but the stilbestrol-fed steers had 57% lean meat as compared to 53% lean in the control group.

Protein Sources: Either high-quality alfalfa hay or cull peas, fed as pellets, are as effective as soybean oil meal in promoting gains in weaner steers, according to feeding trials conducted at Oregon State College. Dr. David C. England compared results from using the three protein concentrates during a 146-day feeding period.

"The Pacific Northwest does not produce major quantities of any protein concentrate commonly used for cattle feeding," said Dr. England. "However, large supplies of cull peas and high-protein alfalfa are usually available. Our tests show that, per unit of protein, these concentrates can do a good job of filling out a ration."

The soybean meal and the cull peas were pelleted and added to a

(Turn to RESEARCH, page 104)

Albert Gustaveson

SALES REPRESENTATIVE—Albert (Al) Gustaveson has been appointed regional sales representative for the Ray Ewing Co., Pasadena, Cal., according to Jack Plonsky, executive vice president of the firm. It is presently planned that Mr. Gustaveson will work with Earl Reeves, eastern sales manager, out of the company's Lancaster, Pa., plant. A graduate of Rutgers University, Mr. Gustaveson has worked with several leading firms serving the feed industry.

Oklahoma Feed Men Elect Victor Jorns

OKLAHOMA CITY—Victor Jorns, Shawnee (Okla.) Milling Co., Shawnee, Okla., was elected president of the Oklahoma Feed Manufacturers Assn. at a recent meeting of the organization. As vice president the group elected Ray Morton, W. B. Johnston Grain Co., Enid, and as secretary-treasurer, they named Weldon Street, Ralston Purina Co., Oklahoma City.

Directors named were Robert Calvert, Evergreen Feed Mills, Ada; Charles Smith, Save-Way Feed Mills, Chickasha; Haskell Cudd, Stillwater (Okla.) Milling Co.; Thomas McGee, Superior Mills, Inc., Oklahoma City; William Hauserman, Gooch Feed Mills, Choctaw, and Joseph Meibergen, W. B. Johnston Grain Co., Enid.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
May 10	1,117	682	923	1,074	208	830	1,943	1,962
May 17	1,175	623	963	986	222	962	2,215	1,769
May 24	1,151	682	931	1,120	207	924	2,136	1,919
May 31	1,166	783	938	1,071	163	843	2,136	1,921
June 7	1,211	697	916	1,031	221	778	2,232	1,945
June 14	1,202	735	1,010	1,106	215	852	2,196	2,014
June 21	1,220	760	1,005	1,143	188	861	2,084	1,944
June 28	1,234	688	1,008	1,160	191	849	2,056	1,987
July 5	1,184	649	932	1,023	191	791	2,275	1,863
July 12	1,217	721	890	1,075	154	719	2,058	1,902

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
May 10	1,395	654	2,771	372	7,134	252	3,180	1,826
May 17	1,472	631	2,778	331	7,437	259	3,072	1,897
May 24	1,515	686	2,861	410	7,338	276	3,399	1,914
May 31	1,530	685	2,984	372	7,551	270	3,350	1,972
June 7	1,555	651	2,951	444	7,211	241	3,213	2,073
June 14	1,524	688	2,889	395	7,063	338	3,251	2,080
June 21	1,612	619	2,947	369	7,153	282	3,310	2,035
June 28	1,630	579	2,889	417	6,878	260	3,251	2,113
July 5	1,476	678	2,876	386	6,724	272	3,166	2,145
July 12	1,542	660	2,769	389	6,869	221	2,958	2,124

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1958	1957
May 10	3,129	506	2,856	324	207	1,088	34,433	28,857
May 17	3,098	521	2,860	355	221	1,228	35,075	28,428
May 24	3,317	486	2,983	364	224	1,068	35,911	28,821
May 31	3,191	538	2,996	428	176	1,202	36,266	28,793
June 7	3,433	509	2,924	431	200	1,114	35,981	29,274
June 14	3,401	505	2,829	453	185	1,120	36,051	29,328
June 21	3,347	512	3,015	394	216	1,203	36,219	29,784
June 28	3,199	450	2,969	365	204	1,142	35,519	29,256
July 5	3,096	413	2,811	389	212	1,147	34,699	29,277
July 12	3,063	460	2,593	442	173	1,160	34,159	29,432

Broiler Prices Down From Week Earlier; Settings Off Slightly

SALISBURY, MD.—Broiler prices last week in the Delmarva area again slid slightly from the previous week. The average price paid on the farm was 20.2¢ compared to 21.1¢ the previous week.

A year ago in Delmarva, broilers brought 22.23¢. Producers in this tri-state area sent 3,748,000 broilers to market last week. This was 6% more than the previous week and 5% more than the corresponding week a year ago.

Looking at the national picture, hatcherymen in 22 reporting states set 46,204,000 eggs last week. This was 1% less than the previous week but 20% above the corresponding week a year ago. Decreases from the number of eggs set from the previous week were reported in eight of the 22 states. Sharpest declines from the previous week occurred in Mississippi, Delaware and Texas.

Growers in the 22 states placed 34,159,000 chicks. This was 2% less than the previous week but 16% above the corresponding week a year ago. Ten of the 22 states reported lower placements compared to the previous week. The greatest decreases from the previous week occurred in Texas, Maryland and Alabama.

Colorado Milling Strike Averted

DENVER—A threatened strike of 1,000 Colorado Milling & Elevator Co. employees was averted when company and union negotiators agreed on new contract terms. The settlement came five hours before the midnight strike deadline last week.

Wage increases, pension plans and health and welfare benefits were the chief issues between the company and the American Federation of Grain Millers.

The contract covers Colorado Milling & Elevator employees in Colorado, Illinois, Missouri, Nebraska, Kansas, Oklahoma, Idaho, Utah and Oregon. About 200 are employed at the Denver mills and elevators.

Adds Idaho Storage

AMERICAN FALLS, IDAHO — Pillsbury Mills, Inc., has announced plans to build storage facilities for an additional 120,000 bu. of grain at the site of its present grain elevator at American Falls. The installation will cost in excess of $40,000. Charles Rockard, manager of the elevator, said plans call for the steel building to be ready for use around Aug. 1.

Lipscombs Form Firm in Trinidad

SPRINGFIELD, MO.—Officials of the Lipscomb Grain & Seed Co here have announced the formation of a new feed manufacturing firm in Trinidad.

The new company is Lipscomb Carribean, Ltd. It will manufacture feed in new facilities being installed at St. Joseph, near Port of Spain, in Trinidad.

Forest Lipscomb, Jr., is president of the new company, Jack Lipscomb is vice president, and Forest Lipscomb, Sr., is secretary-treasurer. A manager of the Trinidad operation has not yet been appointed.

The firm will manufacture and distribute a complete line of livestock and poultry feeds. The mill will serve Trinidad primarily, with feed also distributed to some outlying islands.

The Lipscomb company is leasing a building and grounds from the Trinidadian government. The plant formerly was a feed mill operated by the government of Trinidad. Forest Lipscomb, Jr., said that new machinery has been purchased and will be shipped at the end of this month. The grand opening of the modernized mill is expected to take place early in October.

The mill will be a batch mixing operation with a capacity of 75 to 100 tons of feed per day. It will include facilities for manufacture of pellets and granules.

Mr. Lipscomb noted that a number of local ingredients will be used, including citrus pulp, molasses, coconut meal and corn.

He pointed out that cattle and hogs are being produced in Trinidad now, and the poultry industry is being developed. The new company, he said, will assist producers in bringing their methods and operations up to date.

Hearing on Urea Use Set in Washington

SEATTLE, WASH. — An amendment to the Washington Commercial Feed Law of 1953 that would allow the equivalent protein contributed by urea to exceed more than one third of total crude protein will be given a hearing July 24 in Olympia, Wash.

The director of agriculture for the state or his representative will hold the meeting at 10 a.m. in the offices of the Washington Department of Agriculture, a bulletin from the Washington State Feed Assn. points out.

The regulation concerned is Regulation 9 of the 1953 law, Chapter 15, 52 RCW, as it pertains to the use of urea. The amendment would require proper labeling and warning statements, the announcement said.

USDA Reports '57 Feed Grains Under Supports

WASHINGTON—The U.S. Department of Agriculture reported that 365,276,009 bu. of 1957-crop corn had been put under price support loans and purchase agreements through June 15, 1958.

This compares to 475,766,694 bu. of 1956-crop corn put under support through June 15, 1957, and 420,310,392 bu. of 1955-crop corn put under support through June 15, 1956.

Of the 365.3 million bushels of 1957-crop corn put under support, 28,075,070 bu. had either been redeemed or delivered, leaving 337,450,939 bu. of 1957-crop corn outstanding under support as of June 15. As of mid-June, 80,915,864 bu. of 1956-crop corn were outstanding under reseal and 37,620,625 bu. of 1955-crop corn were under extended reseal, bringing the overall total of 1957, 1956 and 1955-crop corn still under support to 455,987,428 bu. Last year on June 15, the overall total of corn still under support approximated 581 million bushels.

About 38% of the 1957-crop corn put under support was corn grown on farms not under acreage controls.

Of a record 164,244,675 cwt. of 1957-crop grain sorghums put under price support, a record 150,293,111 cwt. have been delivered to CCC.

Of the 90,554,881 bu. of 1957-crop soybeans put under support, producers had repaid loans on 26,619,992 bu. and had indicated that they intended to deliver only 3,042,067 bu. of the 18,924,405 bu. under purchase agreement. Through June 15, deliveries to CCC amounted to 29,916,845 bu. leaving about 18 million bushels outstanding.

Through June 15, producers had resealed farm-stored loans on 1957-crops including 9,835,399 bu. barley, 1,549,478 cwt. grain sorghums, 6,568,176 bu. oats, and 10,310,267 bu. wheat. In addition, 1,260,335 bu. of 1956-crop barley, 1,374,032 bu. of 1956-crop oats, 2,210,973 bu. of 1956-crop wheat, and 1,042,418 bu. of 1955-crop wheat were under extended farm-stored reseal.

Brisk Demand Boosts Oilseed Meal Futures

MEMPHIS—A good cash meal demand resulting from brisk demand for mixed feeds sent oilseed meal futures up strongly on the Memphis Board of Trade the past week.

Unrestricted soybean oil meal closed July 15 as much as $2.95 to $4.25 ton higher for nearby delivery, as compared with the July 8 close.

Eastern Trunk Line soybean oil meal finished the week $2.25 to $2.50 ton higher for July and August delivery. Bulk solvent cottonseed oil meal was up 75¢ ton for July, while sacked old process cottonseed oil meal was unchanged.

Trading was fairly active during the week with 7,100 tons of unrestricted soybean oil meal changing hands. There were no trades made in Eastern Trunk Line soybean oil meal, none in cottonseed oil meal (old process) and only 700 tons in cottonseed oil meal (bulk).

Change in Management

ALBANY, ORE. — A change in management personnel at the Albany Feed & Seed Co. operations of Buchanan-Cellers Grain Co. has been announced. Howard E. Hadley, who has served as general manager since 1944, has requested more leisure time and freedom from business details, and will serve as field representative. Harold MacHugh has been advanced to the position of general manager of the operation. Mr. Hadley was president of the Oregon Feed & Seed Dealers Assn. in 1936-38.

Dr. W. F. Ramseyer

TECHNICAL SERVICE — The addition of Dr. W. F. Ramseyer to the technical service department of the Peter Hand Foundation, Chicago, has been announced by Wiley Akins, vice president and general manager. Dr. Ramseyer holds B.S. and M.S. degrees in animal nutrition from the University of Oklahoma, and a Ph.D. degree in animal nutrition from Cornell University. He was formerly a nutritionist with Swift & Co., Chicago. Mr. Akins said the successor to Dr. H. S. Wilgus, former vice president and director of research for the organization, will be announced within a few weeks.

Beef Cattle Short Course Scheduled

COLLEGE STATION, TEXAS — The annual Beef Cattle Short Course will be held at Texas A&M College Aug. 11-13.

The program will feature a steer carcass evaluation contest and discussions of cattle feeding and nutrition, improving reproduction in cattle, selecting breeding stock, cattle marketing and systemic insecticides for parasite control.

The sessions on feeding and nutrition, the afternoon of Aug. 12, will include the following talks: "Fifty Years of Progress in Beef Cattle Nutrition," Prof. J. K. Riggs; "Recent Advancements and Things to Come in Cattle Feeding," W. P. Crawford, Terre Haute, Ind.; "Contract Feeding in Beef Production" (speaker to be announced); "A New Method of Supplemental Feeding for Range Cattle," Prof. W. T. Berry; "High Moisture Grain and Low Moisture Silage in Cattle Feeding," Prof. Riggs, and "Progress With Systemic Insecticides for Parasitic Control," Manning Price.

Hot Spot Announces Staff Promotions

DES MOINES — D. C. Stixrood, president of Hot Spot Detector, Inc., recently announced the appointment of R. L. Wilson to the post of sales manager for the company. Mr. Wilson has been with the firm nine years, was formerly southwest district manager.

At the same time, Mr. Stixrood also announced the following changes: S. A. Mitchell, Jr., from comptroller to assistant to the president. In his new position, Mr. Mitchell will aid in coordinating the efforts of sales, engineering and production. Of prime concern will be the marketing of the company's product, "Engineered Aeration."

John Perdock will assume the duties of comptroller vacated by Mr. Mitchell.

Food Editors to Tour Maine Broiler Industry

RICHMOND, VA.—A group of key food editors, from major national magazines will tour the broiler industry in Maine in conjunction with the summer meeting of the National Broiler Council's board of directors, scheduled for Poland Spring, Maine, July 28-29.

The purpose of the tour is to acquaint these editors, who represent a national magazine circulation of 48,014,393, with the modern facilities and techniques found in the 22 principal states now producing high quality meat-type chickens, according to Frank Frazier, NBC executive vice president.

This tour to Maine and three subsequent editor trips to broiler industry areas are part of the NBC's public relations program carried out by the Dudley-Anderson-Yutzy public relations firm to tell the consumer the story of the broiler industry.

The editors represent Good Housekeeping, Ladies Home Journal, Life, Look, Family Circle, Woman's Day, McCall's, House Beautiful, Better Homes & Gardens, Dell Publications, MacFadden Publications and Redbook. They will be flown to Poland Spring to meet with the NBC board of directors on July 29.

Highlight of the day on July 30 will be a chick-n-que luncheon with Gov. and Mrs. Muskie at Blaine House in Augusta, sponsored by the Maine Department of Agriculture.

The editors will tour the new processing plant of the Hillcrest Poultry Co. at Lewiston, and the S. Lipman & Sons feed mill in Augusta. Dr. Leonard Dansky, nutrition specialist for Lipman, will point out to the editors the reasons for the ingredients used in broiler feed, and the basic nutrition facts involved.

The group will also visit the Arbor Acres Hatchery and breeding farm near Waterville, and several broiler houses. The tour will end with a buffet supper at the Colonial Inn, Waterville.

CHANGE IN TRADING HOURS OPPOSED

WASHINGTON — Members of the Grain & Feed Dealers National Assn. have expressed opposition to an extension of trading hours by the Chicago Board of Trade. Asked for a survey expression, 230 members were against extending the trading time so that the new hours would be 9:30 a.m. to 2 p.m. (Chicago time). Forty-two members were in favor of an extension of hours, and four expressed no opinion. Members from the eastern states were most solidly opposed to any extension. There was considerable expression of appreciation that the Chicago Board of Trade requested trade reactions to any change in trading hours.

Armour & Co. Renames Laboratories Division

CHICAGO — Armour & Co. has changed the name of its Armour Laboratories division to Armour Pharmaceutical Co., and has named Robert A. Hardt as president of the renamed division.

The new name does not involve any change in the corporate structure, according to William Wood Prince, president of the parent company. Mr. Prince said the new name was selected because it was more descriptive of the operations.

Mr. Hardt was also elected a vice president of Armour & Co. He is currently executive vice president of Hoffmann-LaRoche, Inc., Nutley, N.J., a vitamin manufacturing firm. Mr. Hardt will assume the new post Sept. 1.

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Albers to Distribute New Foragizer for Making Hay "Wafers"

LOS ANGELES—Fred W. Hoover, Jr., president of Albers Milling Co., Los Angeles, and R. W. Stuart, executive vice president of Sumner Iron Works, Everett, Wash., have announced an agreement whereby Albers will have exclusive sales and distribution rights on the Sumner "Foragizer" for all agricultural products.

The Sumner Foragizer is a patented machine developed for compressing chopped alfalfa hay and other compressible forages into what Albers calls "Hayfers." These are "wafers" which are either 3 or 4 in. in diameter and ½ to 1 in. thick. (Feedstuffs, June 21)

Also, said Mr. Hoover, it has been proven practical to add ground grains, protein concentrate and vitamin and mineral premixes to make a complete "Hayfered" feed lot ration and complete dairy feed with built-in roughage.

"A test model Foragizer has been operated by Pendleton (Ore.) Grain Growers, Inc., for three months," Mr. Hoover pointed out. "Economic studies indicate that 'Hayfers' can be produced at costs not to exceed baling costs. They can be handled mechanically from field to feeder, eliminating five hay handling chores—picking up baled hay from the field, roadsiding, truck loading and unloading, and manually breaking open bales and feeding. A large amount of labor can be eliminated, and storage space can be reduced substantially because 'Hayfers' are pressed to three times the density of baled hay."

Mr. Hoover also mentioned such things as reduced trucking costs and less hay wastage.

He announced that a new division has been formed to market Foragizers and assist farmers in developing markets for "Hayfers" and other products of the unit. Little or no capital investment will be required on the part of feedlot operators and others interested in operating the units, he said, because Albers has worked out a "pay-as-you-use" leasing arrangement.

Distribution of the Foragizers will be handled by the industrial sales division of Albers in Los Angeles. Frank Hutchinson will be in charge of the Foragizer operations.

Capacity

The machine has a capacity of 6 tons per hour on 4-in. "Hayfers" and can be operated either as a portable machine mounted on a trailer which can be pulled directly into hay fields, Mr. Hoover said, or as a stationary unit where the chopped hay is brought to the machine at a central location.

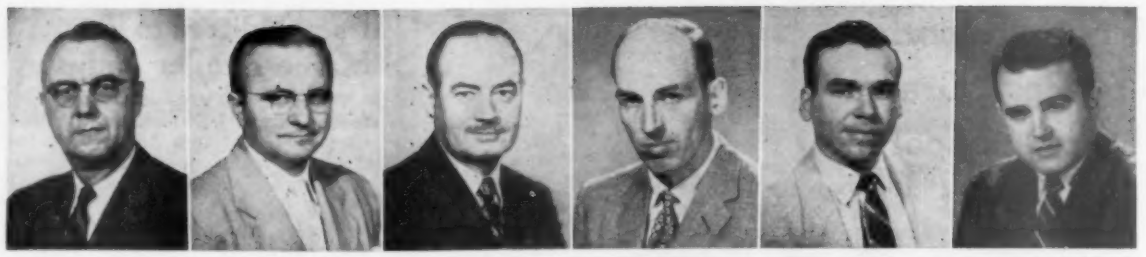
He explained that Albers' first interest in the Foragizer stemmed from a need for compressed hay in the Hawaiian Islands, where the company has distributed feeds for more than 40 years. The reduced volume of the compressed product allows substantial advantages in shipping.

Mr. Hoover went on to cite results of research work at Oregon State College on the feeding of the hay wafers to dairy cows, compared with pelleted hay. (Feedstuffs, June 21)

He said he feels that "Hayfers" could "revolutionize the feeding of both dairy and beef cattle."

He indicated that several feeding trials are in process at the Carnation Farms in the state of Washington and that a number of additional trials are being set up with other colleges to test the feeding of "Hayfers" with grain and concentrates added for both beef cattle and dairy cattle.

"Preliminary tests," he said, "indicate that there are some decided advantages in favor of the 'Hayfers.'"



J. C. Doolittle | D. E. Dexheimer | J. M. Keith | R. W. Lewis | J. S. Welna | P. S. Wright

No Progress Reported In Settling Strike

CHICAGO—No progress was made this week toward a settlement of the strike which has tied up operations of the Hales & Hunter Co.'s feed manufacturing plant here since June 30.

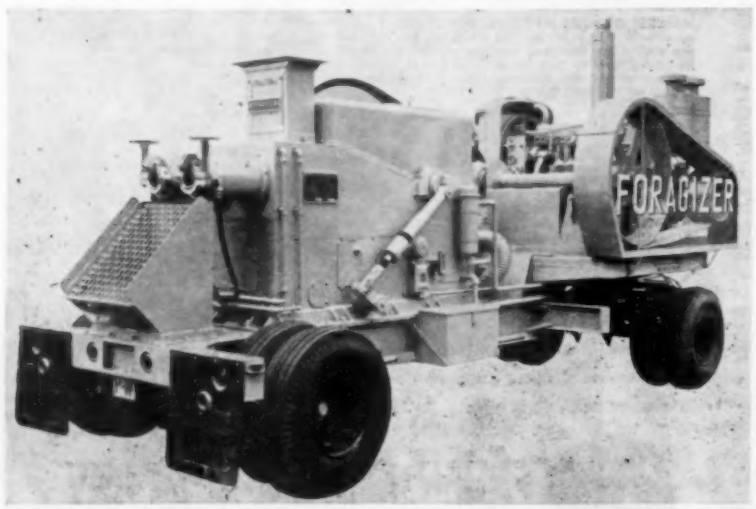
Company representatives and union spokesmen met briefly with federal conciliators July 15, but no basis for a settlement could be found, says Thomas H. Kelley, director of personnel for the Hales company, who is conducting negotiations for the firm. Union officals plan to prepare a proposal for presentation at another meeting, set tentatively for the end of next week, he reports.

Spencer Kellogg Names 2 Directors

BUFFALO — Spencer Kellogg & Sons, Inc., Buffalo, has announced the election of Daniel J. Healy, vice president, and C. Lyndon Bruno, treasurer, to its board of directors.

Mr. Healy, who joined the company's sales organization in 1916, was elected a vice president in 1950. He directs the company's eastern division sales.

Mr. Bruno has been with the company since 1935. He was elected treasurer in 1953. In addition, he is a member of the company's executive committee.



FORAGIZER—This is the new Sumner "Foragizer" for compressing chopped alfalfa hay and other forages into wafer form. The picture shows a portable unit. The machine will be distributed by Albers Milling Co.

Feed Films Viewed By More Than 44 Million—AFMA

CHICAGO — The two films produced by the American Feed Manufacturers Assn. have been viewed by 44,535,518 persons, according to an association announcement.

One of the films, "Growth of a Nation," is a 33-min. black and white production telling what the feed industry is. It was released in 1950 and has been viewed by 39,155,880 people in 41,306 group meetings and on 605 television programs.

The other movie, "Old MacDonald," is a full-color, 27-min. entertainment film telling what the feed industry does. It was released late last year and has been seen by 5,379,638 people in 2,041 group meetings and on 112 telecasts.

The great growth of television sets in farm homes has done much to enhance the effectiveness of this type of public relations effort, the AFMA announcement pointed out.

Since "Growth of a Nation" was released it has been shown 605 times on 343 TV stations.

Cincinnati Club Holds Party, Elects Officers

CINCINNATI — Thirty-five members and guests of the Cincinnati Feed Club attended an annual golf party and dinner July 2 at the Summit Hills Country Club in nearby Kentucky. Golf winners were Aubrey Eaton, Victor Transit Co., low gross of 81; Harley Aylor, John F. Young Co., high gross of 114, and Edward C. Cohan, Merrill Lynch, Pierce, Fenner & Smith, low net of 70. All those who played were awarded prizes.

After dinner, Mr. Cohan, a past chairman, installed the following new officers: Charles M. Winchell, Darling & Co., chairman; Ray Fledderman, Archer-Daniels-Midland Co., co-chairman; Carl J. Nortmann, John F. Young Co., secretary-treasurer, and Parker Hitzfield, Early & Daniel Co., and Alex Steele, Kentucky Chemical Industries, Inc., directors.

In appreciation for their many years of club services, John F. Young was presented with a two-piece companion car-luggage set, and Dr. Lawrence E. Carpenter, executive director, Distillers Feed Research Council, and retiring secretary-treasurer of the club, received a lounge chair and imported beer mug.

Net Income Drops

WILMINGTON, DEL. — Hercules Powder Co. reported for the six months ended June 30, 1958, net income equal to 89¢ a share of common stock. This compares with net income in the first six months of 1957 equal to $1.03 a share of common stock. Net sales and operating revenues for the six months' period were $116,773,028, compared with $124,752,266 for the corresponding 1957 period.

TOLEDO BOARD OF TRADE

TOLEDO, OHIO — Charles W. Teitsworth, Pillsbury Mills, Inc., Lima, Ohio, has been elected to membership in the Toledo Board of Trade, according to F. M. Alexander, board president.

Dr. Salsbury's Labs Forms New Marketing Division in Firm

CHARLES CITY, IOWA—Dr. Salsbury's Laboratories at Charles City has announced formation of new objectives to meet what it calls "the changing needs of the firm's worldwide markets," and to expand its services to the poultry and livestock industry.

In line with these objectives one of the company's divisions has been reorganized. H. G. Bos, formerly director of the sales and advertising division, now heads the new marketing division.

H. G. Bos

He coordinates all marketing activities—sales and advertising, product planning, market research, customer service, education, industry and public relations and budgeting.

Under the new program, several men have been appointed to new positions. They include:

J. C. Doolittle, formerly assistant sales manager and with Dr. Salsbury's for 14 years, to marketing research manager. He will develop and analyze marketing data for the company's package and feed additive products.

D. E. Dexheimer, a pharmaceutical researcher and with the company since 1944, to marketing technical adviser. He registers company products, reviews advertising and promotional material for technical accuracy and advises the marketing staff on technical aspects of product use.

J. M. Keith, who has handled advertising distribution since 1944, to merchandising services manager. He is responsible for the assembly and distribution of all advertising and promotional material, as well as mailing lists, inventories, and records.

R. W. Lewis, in advertising production for the past 12 years, to creative services manager. He directs the preparation of graphic and written material used by the marketing division and provides creative services to all divisions of the company.

J. S. Welna, with the education department of the company since 1954, to education manager. He directs the operation of the customer education program at Charles City and assists the territory managers and district sales managers with this activity in the field.

P. S. Wright, who recently joined the firm, product manager for package goods. He plans and recommends marketing programs for package goods, including biologics.

Burns to Ground

GREENSBURG, IND.—Fire leveled the Garland Mills, Inc., grain storage elevator here, destroying an estimated 30,000 bu. wheat. The cause of the blaze is unknown. The elevator is owned by Nebraska Consolidated Mills Co., Omaha, of which Garland Mills is a subsidiary. E. E. Olson, manager, estimated the grain loss at $45,000. There was no estimate on the building and equipment. Firemen from Greensburg and surrounding communities battled the fire for two hours and managed to keep it from spreading to adjoining buildings.

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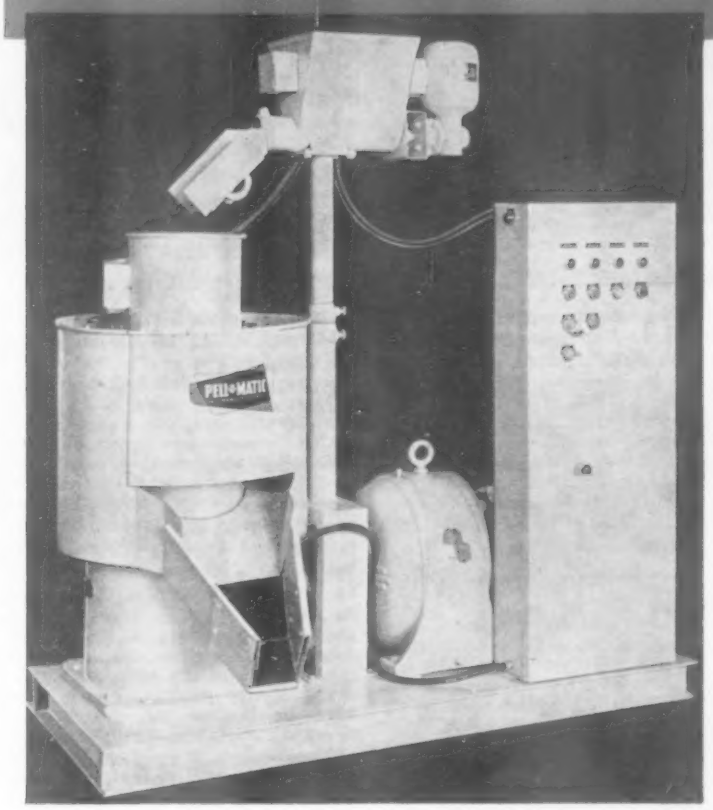

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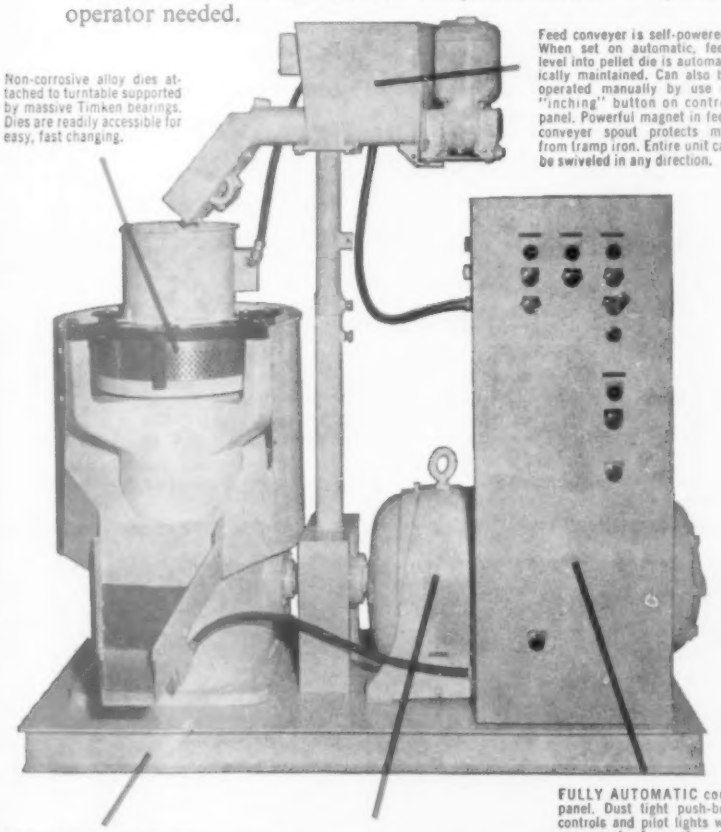

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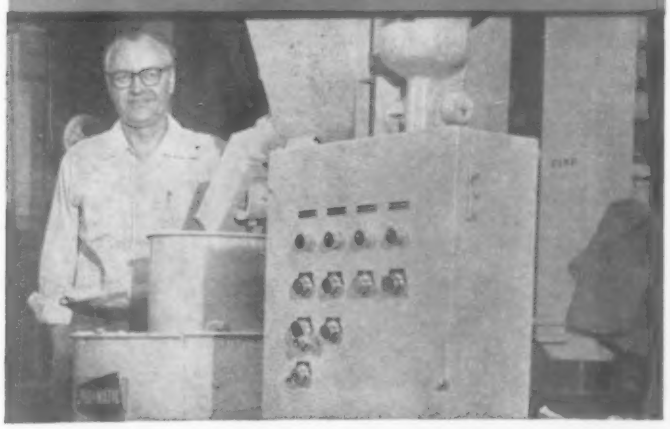
Better pellets at a substantially lower cost of production.



"Our recent expansion program included the installation of a PELL-O-MATIC automatic pellet mill. Now we produce top quality pellets right here in our plant and can compete with anyone on price and service. The addition of pellets to our feed line has given a big boost to our volume. We think the PELL-O-MATIC is the answer for any local feed mixer."

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THE ROLE OF THE BUYER IN TODAY'S FEED BUSINESS

"The very economy of the conversion of feed into meat, milk, eggs and fiber requires that the best buy in the market price at a given location be used for each particular nutrient. This requires a close watch on a wide variety of markets and a coordination with the entire feed manufacturing organization."

By Eldred A. Cayce
Ralston Purina Co.

EDITOR'S NOTE: The accompanying article is the second in a series being published as part of the observance of the feed industry's "Golden Year." The 12 months following the American Feed Manufacturers Assn. convention in May were designated as the Golden Year, with the spotlight focused on the feed industry, its progress in serving animal agriculture and its prospects for the future. In this connection, Feedstuffs is publishing a series of articles on various phases of industry operations, nutritional advance and new opportunities in feeding. The author of the accompanying article points out the importance of the buyer in the manufactured feed industry, describes some of the characteristics of a buyer in today's feed business, and explains how a planned program is required to do an effective purchasing job.

A Golden Year Feature

The buyer in our industry has a unique position, in contrast with buyers in other industries and businesses. In the clothing business the buyer is actually the style merchandiser. In heavy industry he is frequently specialized, working with a single ingredient. The buyer for a manufactured feed line may be purchasing as many as 100 different ingredients from a wide variety of industries.

Our manufactured feed business is somewhat unique in that each mill is a blending unit capable of putting together these 100 ingredients into a complex line of nutritionally balanced rations or supplements which embody most of what has been learned from extensive research in the past 50 years.

The very economy of the conversion of feed into meat, milk, eggs and fiber requires that the best buy in the market price at a given location be used for each particular nutrient. This requires a close watch on a wide variety of markets and a coordination with the entire feed manufacturing organization to see that its action is as good as its best information. How can all of this be accomplished?

Working Relationships

The key of course comes in a number of ways, not the least of which is the working relationship the buyer must have with other segments of his business. Nutrition research, product control, production management, traffic, to name a few of them, are all a part of the story. The buyer himself needs to be a bit of a salesman in lining up sources of supply and in getting deliveries when he needs them. He needs to be a development man in the development of new ingredients, and finally he becomes the first line of defense in protecting quality.

Which comes first? Like the old chicken and egg story, the buyer has nothing to buy until specific product formulation is projected with the probable volume of business. It's easy to see that unless he is feeding the proper information regularly to the research organization responsible for formulation, he can be making bad buys, particularly in periods of changing markets. On the other hand, the research organization must know the values of the various ingredients on current or future markets in time to make decisions ahead of the need to buy.

How can such a working relationship be established? Of course the company that does the best job of its communications in this field will certainly have an edge in the unit cost of production of food. Such a program involves careful stock control and projection of future needs, as well as enough market awareness to see trends before the actual market change has taken place.

Planned Program Needed

It takes a planned program to select the sources of supply of good quality ingredients and insure that it works at all times. Very helpful in this field have been the trading rules of some of the associations, the American Feed Manufacturers Assn. purchasing guides that have been issued by the Nutrition Council, and programs of the various association conventions and the feed press.

In the last analysis, each company must devise its own ingredient standard to cover the important factors of each ingredient that have been learned from the company's own research, its production experience and its buying experience. It is at this point that the product control department is a very important ally and advisor. The buyer is working these factors into his buying contracts and maintaining his relationships with the suppliers. A properly planned program of this kind is an absolute necessity to quality products.

Finally, the buyer needs to come up through a particular kind of experience. He must have a native curiosity in learning backgrounds about every single ingredient he buys. He should visit producers of these ingredients to gain a full knowledge of their quality factors and a personal acquaintance with the men with whom he is doing business.

Production and product experience is very valuable for a buyer. The opportunity to work with experienced buyers is the ideal training situation, even though the buyer himself must have his own responsibilities and experience.

Understanding of Markets

A thorough understanding of all the factors that play upon markets will help him understand how to plan his action—geography, weather, rates of running time of allied and supplier industries and the reasons back of them, the government programs, his own company needs, the capacities of suppliers, truck and rail rates, and facilities and procedures at his own mill or mills.

Perhaps we don't have to go back 50 years to find a picture of an order-giver-buyer. His only service was to get the ingredient from somewhere after the production department rushed in to say the ingredient was all gone. His major qualification as a buyer was to offer a quarter of a cent less per bushel, or 50¢ less per

Eldred A. Cayce

AUTHOR — Eldred A. Cayce, vice president in charge of buying for the Ralston Purina Co., joined the company in May, 1917, in the traffic department at the company's Nashville, Tenn., plant. He has served as traffic manager and buyer at Nashville, assistant manager and acting credit manager of the Purina plant at Kansas City, buyer for Purina on the Kansas City Board of Trade, manager of the Checkerboard Elevator Co. in Kansas City, and manager of the Circleville, Ohio, plant. In January, 1944, he transferred to Purina headquarters in St. Louis as head of the grain division in the buying department. In 1945, he became assistant vice president and in June, 1946, he became vice president in charge of buying. In 1956, he became a member of the company's board of directors. Mr. Cayce is a native of Nashville. He is a member of the St. Louis Merchants Exchange and a past president, the Missouri Bar, the St. Louis Chamber of Commerce, the Chicago Board of Trade, the Kansas City Board of Trade and a former director, the Memphis Merchants Exchange, the New York Produce Exchange, past chairman and now a director of the National Soybean Processors Assn., and a director of the National Grain Trade Council.

A group of Purina executives is conferring and studying a ticker tape. Left to right are Hal Dean, assistant to the president; D. B. Walker, manager, soybean and oil meal division; E. A. Cayce, vice president in charge of buying, and Lamar M. Kishlar, manager, special products division.

An effective buying job requires coordination with the entire feed manufacturing organization. The product control and research departments are among those in a feed company with which a buyer must work. The above photo is a scene from a Purina laboratory.

The buying department of a feed manufacturing firm must keep a close watch on a wide variety of markets. One of the places where a large volume of ingredients is purchased is the grain exchange. The above picture provides a view of the trading floor of the Minneapolis Grain Exchange.

ton, than the asking price, never realizing that those who knew him automatically added that figure to their price.

Today's buyer is informed on market values and their time and geographic relationships. He makes his company money by buying the right ingredient in the right location at the right time. It's the smart buyer today who understands his own business so well that he gives his purchases to the supplier with the best product and the best service and the continuous supply, and pays a fair price for it so that both will continue in business.

Often when making speeches, to illustrate the difference between an up-to-date ingredient buyer and the way the average person used to think of a buyer 50 years ago, I quote the following article:

"THE BUYER"

"The typical buyer is a man past middle life, spare, wrinkled, intelligent, cold, passive, noncommittal, with eyes like a codfish, polite in contact, but at the same time unresponsive, cool, calm, and as damnably composed as a concrete post or a plaster-of-paris cast, a human petrification with a heart of feldspar and without charm or the friendly germ, minus bowels, passions or a sense of humor. Happily they never reproduce, and all of them finally go to hell."

Obviously this type of buyer has no place in industry today and certainly could not meet the high standards required of the buyer today in the manufactured feed and allied industries.

T. E. Hartman (right), manager of the buying department of the Purina plant in Minneapolis, is looking over an oats sample on the trading floor of the Minneapolis Grain Exchange. On the left is S. L. Niebur, Minneapolis manager for the Checkerboard Grain Co.

Alabama Meat Packing Firm Expands Plants

MOBILE, ALA. — R. L. Zeigler, Inc., meat packing firm, is undertaking a $1,500,000 modernization and expansion program of its Alabama livestock slaughter plants.

Work at the company's Selma plant is now being completed, and detailed plans are being drawn for expansion programs at the Tuscaloosa and Bessemer operations.

J. M. Gentry, manager of the Selma plant, said improvements have given his operation 44,000 sq. ft. of floor space, and of this total, 20,000 sq. ft. is under refrigeration.

Additions completed at the Selma plant in the past 18 months include a beef cooler, packing cooler and complete sausage factory. Expenditures involved about $200,000.

Fourteen salesmen operate out of the Selma plant, covering an area from central Alabama to the Gulf and east to the Georgia line. The Selma plant operates 12 refrigerated trucks and employs 160 people.

The company, founded in 1927, now employs some 600 people at its three Alabama plants. The Tuscaloosa and Selma plants slaughter more than 200,000 hogs and 80,000 head of cattle each year.

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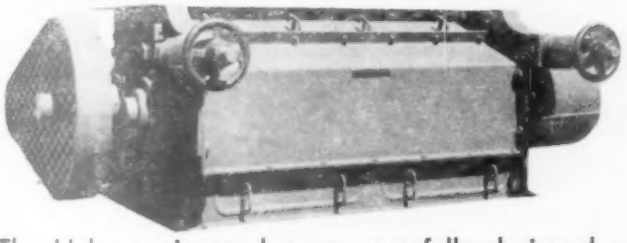
Helm Crumblizer



The Helm engineers have successfully designed a crumblizer for high production and uniform crumbles. Height being only 20" and so arranged to go under the vertical cooler.

The Helm Crumblizer is very smooth and quiet. It is equipped with V-belts and automatic take up. There is a by-pass built into the unit to allow the pellets to go through the crumble rolls or by-pass the rolls. The unit is made in two sizes.

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1 MISSISSIPPI STATE COLLEGE EGG-LAYING TEST was conducted for six months, from March to September 1957, with caged White Leghorns.

Treatment	Antibiotic Per Ton of Feed (grams)	Egg Production (hen day basis)	Pounds Feed Per Dozen Eggs
Control	0	49.1%	5.6
Combination*	200 (I)	57.8%	5.0
BACIFERM (zinc bacitracin)	200 (I)	55.3%	5.1
Terramycin® (oxytetracycline)	200 (I)	52.0%	5.3
BACIFERM (zinc bacitracin)	35	53.9%	5.7
Terramycin® (oxytetracycline)	35	52.8%	5.4

(I) = Intermittent feeding (4 days per month); other treatment fed continuously.

*Combination of 100 grams zinc bacitracin and 100 grams oxytetracycline.

The data shows that Baciferm produced excellent results in improving egg production and egg/feed ratio. While both antibiotics tested gave similar results, note that hens fed Baciferm did slightly better. Best results were obtained by intermittent feeding of the antibiotic combination containing Baciferm.

2 V.P.I. EXPERIMENT STATION LAYING HEN TEST investigated the use of Baciferm antibiotic supplementation at low and high levels on rate of lay, feed conversion and fertility. 44 pullets were on test during the 46-week period November 1, 1956 through September 21, 1957.

Treatment	Antibiotic Per Ton of Feed (grams)	Egg Production	Lbs. Feed per Doz. Eggs	% Fertility	% Hatchability of Fertile Eggs Set	Mortality No.
Control	0	60.5%	4.68	91.7	89.1	4
BACIFERM (zinc bacitracin)	10	73.3%	4.37	95.4	90.4	5
BACIFERM-PB* (zinc bacitracin)	10	73.1%	4.46	98.2	90.3	6
BACIFERM (zinc bacitracin)	100	72.0%	4.28	97.3	92.3	2
BACIFERM-PB* (zinc bacitracin)	100	70.7%	4.55	98.5	92.4	1

*Contains zinc bacitracin plus penicillin (3:1 ratio)

Egg production was increased between ten to twelve percent by feeding zinc bacitracin. The egg-feed ratio was improved as much as 8.5% and one of the best ratios was obtained with 10 grams zinc bacitracin per ton. Fertility was increased as much as 6.8%. Even with this betterment of fertility, zinc bacitracin then increased the percent of fertile eggs hatched. Note also the lower mortality at 100 gram per ton level.

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antibiotics in layer gives you the proof

3 **THE JOHNSON LOW-LEVEL HEN TEST** conducted near Terre Haute, Indiana, for 27 weeks, January 6 to July 7, 1957, investigated the use of Baciferm during slumps in egg production. There were 53 White Leghorns in each test group.

Treatment	Antibiotic Per Ton of Feed (grams)	Drop in Egg Production %	Extra Eggs Due To Zinc Bacitracin Eggs/1000 birds/day	Extra Profits Per Day/1000 Birds	% Mortality
Control	0	10.3	—	—	17.0
BACIFERM (zinc bacitracin)	10	6.3	63	$1.80	8.5
BACIFERM-PB* (zinc bacitracin)	10	6.5	65	$1.74	6.4
BACIFERM-PB* (zinc bacitracin)	25	3.1	70	$1.73	8.7

*Contains zinc bacitracin plus penicillin (3:1 ratio)

In this test, the inclusion of Baciferm in the ration resulted in a minimized drop in egg production compared to the control. Baciferm increased profits, raised egg production, reduced mortality and improved the feed efficiency.

4 **MICHIGAN FIELD TRIAL** was conducted at a large egg farm in Central Michigan on 3551 White Leghorns. A commercial all-mash, layer-breeder feed was fed throughout the test period of 6 months to about half the birds. The other half was fed the feed with zinc bacitracin incorporated at a level of 50 grams per ton. The economics are summarized below.

	No Antibiotic	BACIFERM Zinc Bacitracin (50 grams/per ton of feed)
Return from hatching eggs* 60¢/dozen	$8540.40	$8689.80
Total feed costs*	4216.50	4198.95
Return over feed costs	4323.90	4490.85
Gain from feeding zinc bacitracin	—	166.95

*Feed $90.00/ton; zinc bacitracin cost $3.00/ton of feed.

Results: the feed containing zinc bacitracin gave a greater net return than the basal feed alone. This field trial shows that if production is low from the type of stresses involved in this test, it is economically worthwhile to add an antibiotic. An extra penny invested per dozen eggs could make the difference between profit and loss.

BACIFERM IS GOOD BUSINESS FOR YOU! And good insurance for your customers. Baciferm – at high levels or at low levels – does the job in laying rations. Outstanding for broilers, turkeys and swine, too. Only Baciferm contains the antibiotic zinc bacitracin made exclusively by CSC under Patent No. 2,809,892 issued October 15, 1957. Baciferm also supplies B-vitamins, high protein, vitamin K and unidentified growth factors, as well. And – Baciferm costs from $3 to $6 per ton *less* than the tetracyclines. More and more feed manufacturers are discovering –

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Feeding Experiments Reported at 53rd Meeting of Dairy Science Association

RALEIGH, N.C.—Some 213 research papers were presented at the recent 53rd annual meeting of the American Dairy Science Assn. at North Carolina State College. Registration totaled 1,745, the largest attendance in the group's history.

Several of the papers which dealt with feeding are briefly summarized below. Most of the summaries were provided by H. F. Judkins, secretary-treasurer of the association.

The effect of feeding tetraalkylammonium stearate to milking cows was studied. Control and experimental results were essentially the same in milk production, concentrates and hay consumed and weight gained. (A. C. Linnerud, J. D. Donker and J. B. Williams, University of Minnesota.)

The effect of feeding thyroprotein to dairy heifers along with their ration produced no significant results in either direction. (V. Singh and J. D. Donker, University of Minnesota.)

Substituting grain for part of the hay in a ration for a dairy cow can help rumen bacteria do their work of digesting feed faster and better. Scientists have known for some time that they could stimulate milk production by replacing some of the hay with grain. But the response is beyond what would be expected from just the feeding value of the new ration.

Attempts are being made to identify the so-called "lactation-factors" that are associated with feeding grain to dairy cows. If they can be identified, it may be possible to treat cheap feeds so cows could use them, or milk production could be greatly boosted from presently used feeds. (Roy S. Emery, Michigan State University.)

It was determined that the adding of water to the concentrate mix fed to 16 Brown Swiss cows showed that their eating rate was increased by the addition of water, but there was no evidence of any effect on milk flow. (E. W. Hupp and R. C. Lewis, Michigan State University.)

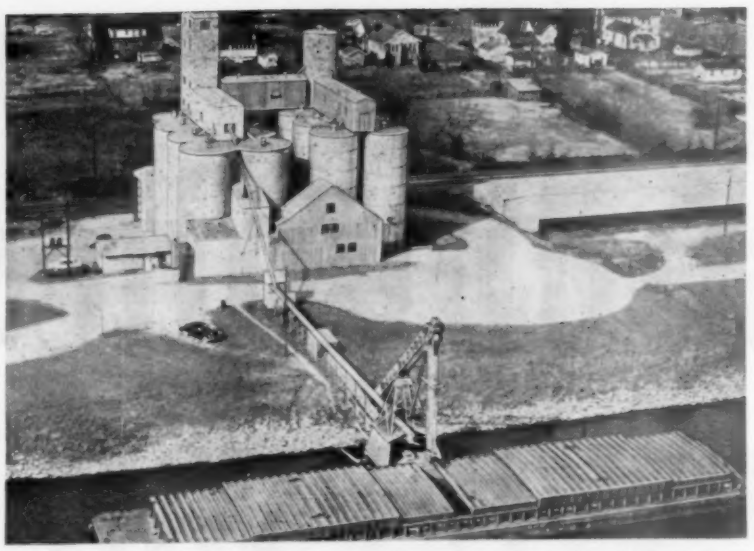
An experiment was carried out in which, beginning about 72 hours prepartum and continuing until 48 hours postpartum, all animals in the treatment groups received 30 million U.S.P. units of vitamin D_3 daily in their grain. Thus far data has been collected for over 400 parturitions. The results indicate that this heavy dosage does help prevent the incidence of parturient paresis in dairy cattle. (J. C. Dell and B. R. Poulton, University of Maine.)

The effects of tetraalkylammonium stearate in a milk replacer and a dry calf starter were studied. Regardless of the basal ration used, weight gains were similar with all treatments. Occurrence of scouring was greater and starter consumption was not as great with the animals treated with tetraalkylammonium stearate in both milk replacer and starter. There was no great difference in calf body-temperature between groups for the first two weeks of life. (W. A. Olson and J. B. Williams, University of Minnesota.)

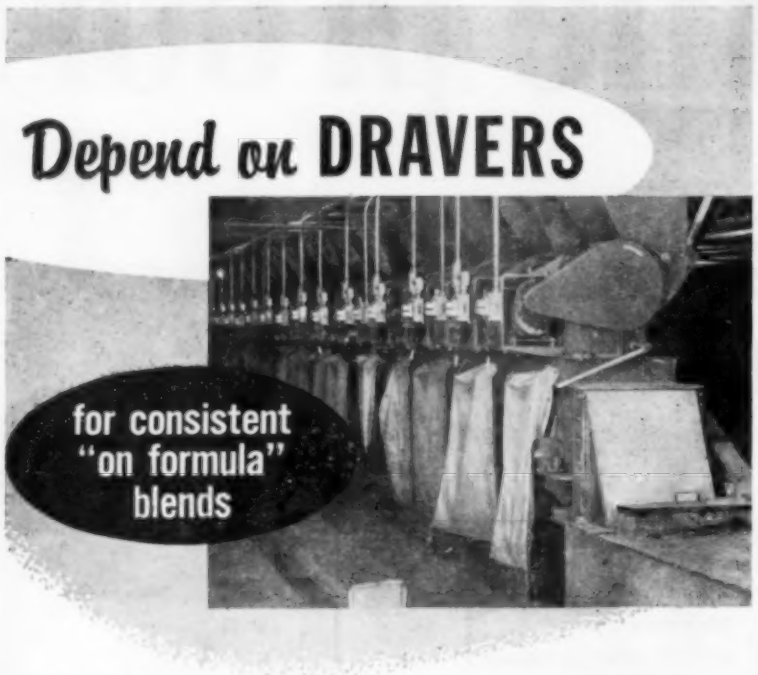
Twenty-four male Holstein calves were divided at random into three groups: Group I served as the control; group II received 50 mg. of a mixture of three antibiotics (25 mg. of CTC, 18.75 mg. of zinc bacitracin, and 6.25 mg. of procaine penicillin) daily, and group III received 50 mg. of chlortetracycline daily. Colostrum was fed for the first three days; then whole milk was fed at the rate of 10% of body weight up to 30 days of age. A plant-protein calf starter and medium-quality hay were fed beginning at four days of age.

The calf starter for group II was supplemented with a 1% supplement mixture of the three antibiotics (.92 g. CTC, .72 g. bacitracin and .24 g. penicillin) and the calf starter for group III, a 1% supplement of CTC (1.86 g. CTC per lb.). At eight weeks of age, both antibiotic-fed groups (II and III) showed increased gains in weight by 15%, increases in height at withers and increased feed consumption over those of the control group. Hay consumption by the antibiotic-fed groups was started earlier and was almost double that of the control group. The few cases of scours present occurred only among the calves in the control group. (L. L. Rusoff and W. J. Milstead, Louisiana Agricultural Experiment Station.)

It was found that the administra-



GRAIN TERMINAL PLANT—Shown above is the grain terminal plant at Guntersville, Ala., which was recently purchased by Central Soya Co., Inc., Ft. Wayne, Ind. The plant formerly belonged to the Norris Grain Co., Guntersville. The purchase was announced by Robert B. Parrott, vice president of Central Soya grain merchandising. He said that the unit, with a 250,000-bu. capacity, includes both concrete and steel tank storage, and is completely equipped for grain merchandising. "The terminal will serve as a market for the surplus grains grown in the area, and as a source of supply for the expanding poultry and livestock industries in the surrounding region," Mr. Parrott explained.



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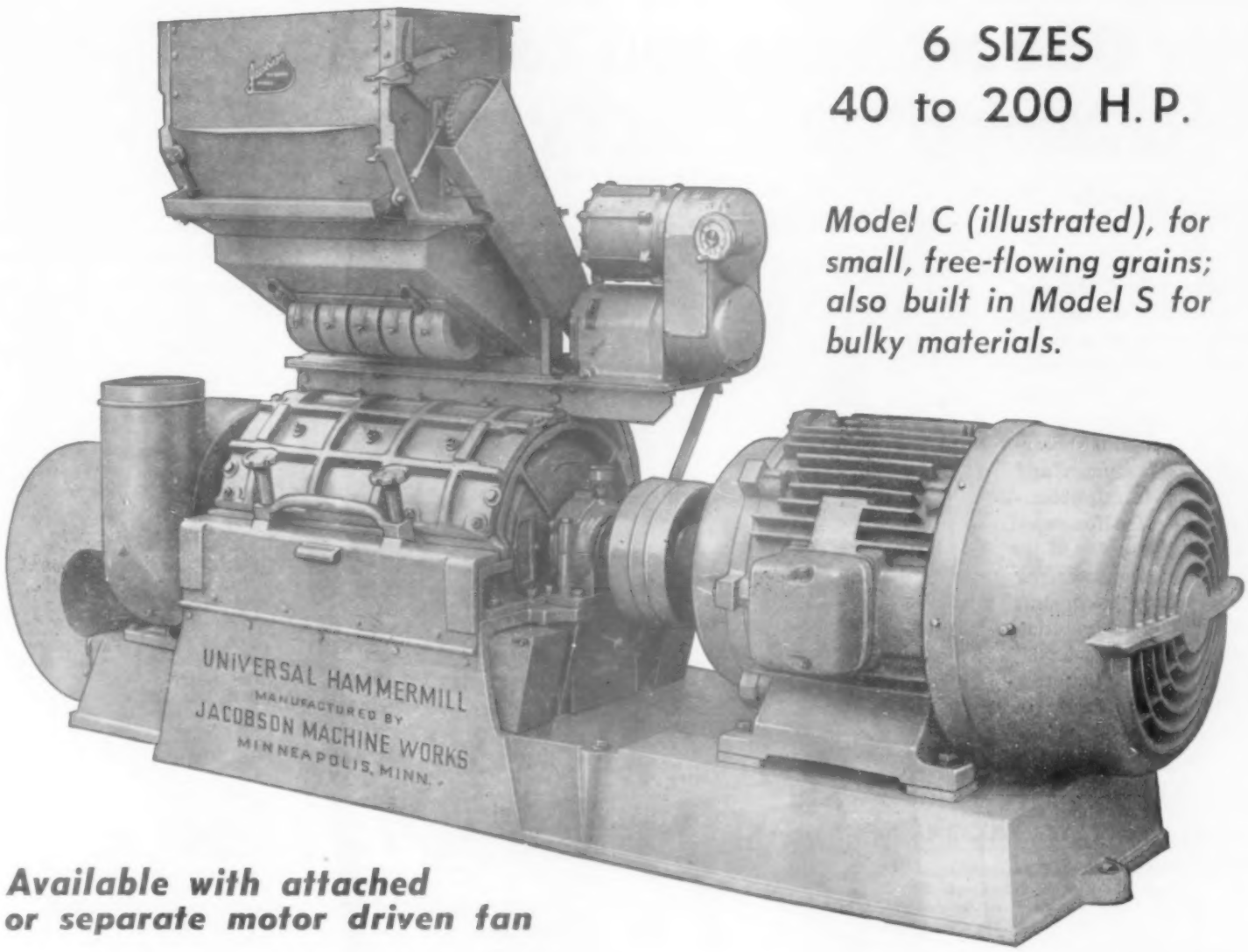

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tion of 800 ml. of 47.5% ethanol via rumen fistula during the once-daily feeding of various rations depressed rumen dry matter content and utilization of radioactive inorganic sulfate for cystine synthesis in vitro without affecting in vitro ammonia utilization or synthesis of methionine or glutathione. Total gas production in vitro was depressed by ethanol. (T. R. Lewis, R. S. Emery, and J. P. Everett, Michigan State University.)

The effect of a scabrous and a nonscabrous diet on rumen motility and intrarumen pressure was reported. Four Ayrshire bulls were fed a nonscabrous diet consisting of a concentrate mix and a roughage in the form of a wood cellulose product, Solka-Floc BW-20, from 6-41 months of age. In 19 rumen motility trials, conducted when the bulls were 35 months old, it was found that the average fasting rumen contraction frequency per minute, primary contraction amplitude (cm. water), and intrarumen pressure (cm. water) were 2.1, 9.1 and 1.8 respectively. Not only were the bulls bloated during the motility trials, but also before this, and up to the time scabrous material was included in the diet.

When the bulls were 41 months old, the Solka-Floc BW-20 in the diet was replaced by prairie hay. Within four weeks, the average fasting rumen contraction frequency per minute, primary contraction amplitude (cm. water), and intrarumen pressure (cm. water) were 1.6, 12.2 and -4.9, respectively. These values are within the normal range for cattle. The results suggest that scabrous material in the diet is necessary to maintain the tonic activity of the central pool of motor neurons responsible for rumen motility and, perhaps, eructation. (H. W. Colvin, Jr., S. D. Musgrave and G. F. Williams, Oklahoma State University.)

Forage Handling

Nutrient losses and feeding values of wilted and direct-cut forages stored in bunker and tower silos were reported. First-cutting forage, principally orchard grass, was harvested simultaneously from the same fields and stored as (1) wilted forage in a tower silo, (2) direct-cut forage in a bunker silo, and (3) as a direct-cut forage in a tower silo.

Both direct-cut forages were treated with 8 lb. sodium metabisulfite per ton. Silage temperatures were recorded for the tower-stored silages.

Composition changes, nutrient losses, digestibility and feeding value for dairy cows were determined for each silage. Top spoilage losses were minimized in all silos by the use of wilted tower-stored silage, 14.8% in the direct-cut, bunker stored silage and 20.9% in the direct-cut, tower-stored silage. Higher seepage losses accounted for a large part of the greater total losses in the latter silage. All silages were of good chemical quality, with pH values of 4.2-4.4. The wilted silage had a higher content of the organic acids measured.

Wilted silage dry matter was consumed at the rate of 23.3 lb. per cow daily which, with grain supplement, produced 1.8 lb. of live weight gain and 24.5 lb. of FCM daily. Respective values for bunker-stored silage were 20.1, .7 and 25.1, and for direct-cut, tower-stored silage, 20.5, 1.3 and 23.5. (C. H. Gordon, C. G. Melin, W. C. Jacobson, H. G. Wiseman, E. A. Kane and J. C. Derbyshire, dairy cattle research branch, and J. R. McCalmont and D. T. Black, agricultural engineering research branch, U.S. Department of Agriculture.)

Forage and milk yields from alfalfa harvested under three different harvesting systems were reported. The experiment was set up to determine the relative yield of forage, labor costs and milk yield when alfalfa was used for pasture, soiling crop or soilage.

A 10% increase in yield was obtained by mechanical harvesting. No bloat problem was experienced using the California system of controlled grazing, and excellent consumption of available forage was obtained. There was no significant difference in milk yield while utilizing alfalfa as pasture, silage or soiling crop. Pasturing of alfalfa was the most economical, but it is felt that this method would have limited use. (R. M. Porter and S. R. Skaggs, New Mexico Agricultural Experiment Station.)

The comparison of a commercial

(Turn to EXPERIMENTS, page 92)

C. W. Brown

SALES MANAGER — C. W. Brown has been appointed sales manager of Melos Manufacturing Co., Des Moines, manufacturer of the Melos Mobile Mill. Mr. Brown, who has been active in the feed and grain trade for more than 15 years, will direct and supervise sales for the company in 11 midwestern states. Melos has also announced the purchase of a tract of land for expansion of present facilities. Construction is to begin later this year.

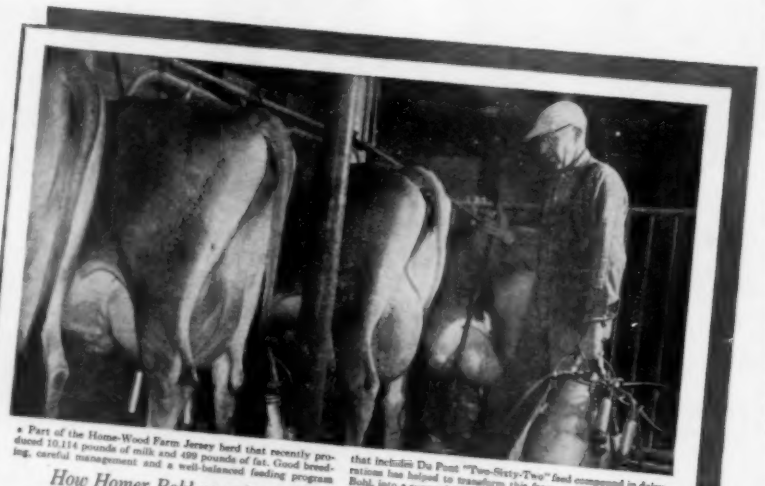
How Du Pont helps you sell feeds containing TWO-SIXTY-TWO®

FEED COMPOUND

DU PONT advertisements like the one on the right are telling dairymen that the top purebred herds in the country are fed rations containing "Two-Sixty-Two."

This Du Pont ad is appearing in "Hoard's Dairyman" and other leading farm publications. It features the Homewood Farm Jersey herd, one of the largest and most outstanding purebred herds in the country, a herd that is fed a dairy ration containing "Two-Sixty-Two."

Leading herds of the other dairy breeds will be featured in a continuing series of advertisements to dairymen. All of them will back up your sales effort by telling dairymen about the success achieved in feeding rations that include "Two-Sixty-Two."



• Part of the Home-Wood Farm Jersey herd that recently produced 10,114 pounds of milk and 499 pounds of fat. Good breeding, careful management and a well-balanced feeding program that includes Du Pont "Two-Sixty-Two" feed compound in dairy rations has helped to transform this farm, owned by Homer C. Bohl, into a successful and profitable operation.

How Homer Bohl practices

Successful dairying at Home-Wood

Twenty-five years ago, Homer Bohl purchased a run-down and unproductive 90-acre farm at Route 1, New Vienna, Ohio. Today those same 90 acres in Highland County, known as Home-Wood Jersey Farm, provide Mr. Bohl with a profitable living and carry all the livestock he can handle. In 1951, he received the Cleveland Farmers' Club Restoration Award.

Mr. Bohl's herd now totals 48 head of purebred Jerseys, with 30 cows in milk. The herd average over a five-year period through 1955 was 9,883 lbs. milk, 484 lbs. fat. In 1956, 19 cows averaged 10,114 lbs. milk, 499 lbs. fat. 28 classified females averaged 86.25% with 2 excellent, 18 very good, 7 Good Plus and 1 Good. Mr. Bohl has also proven two bulls, both of which are serving thousands of Jersey dairymen through artificial insemination.

The successful program of Homer Bohl is based on a high roughage system. Hay is fed free choice the year round; when the cows are on pasture, hay is kept in bunks. Between pasture seasons 15 lbs. of grass silage per day are fed. The grain mixture is 1,200 lbs. corn, 600 lbs. oats and 350 lbs. of a dairy ration containing Du Pont "Two-Sixty-Two" feed compound, a top-quality urea source of protein. In dairy feeds, "Two-Sixty-Two" not only provides an efficient source of protein, but also helps unlock extra nutritive values in stimulating rumen bacteria which break down feed fibers in roughage.

As Homer Bohl has done, ask your feed supplier to include Du Pont Two-Sixty-Two® in your dairy supplements.

• Homer Bohl practices grassland farming, and his farm furnishes all the pasture, hay, silage and oats for his herd of purebred Jerseys. He purchases corn and a dairy ration which contains Du Pont "Two-Sixty-Two"—the first and finest urea source of protein.

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Emphasis on Efficiency Boosts Profits for Illinois Custom Mill

By Al P. Nelson
Feedstuffs Special Writer

Two years ago, when the Eureka Milling Co., Roanoke, Ill., installed some new equipment, the grinding and mixing volume amounted to approximately $300 per month. Today, with the new equipment operating efficiently—two Myers-Sherman mixers of 2½-ton capacity, a Myers-Sherman molasses blender, and a Myers-Sherman 60 H.P. hammermill—the monthly income from grinding and mixing averages about $850.

In those figures, says Eli Fisher, manager, lies the story of how efficient machinery can change the income picture in an average-sized custom mill in an average community. The company also operates small mills at Gridley and Goodfield, Ill., with older machinery in these places.

"When farmers heard that we could give better and faster service with our new machinery, they were more willing to give us their business," says Mr. Fisher. "We are now making a profit on our custom milling. This custom milling department is operated by one man, who gets only occasional help from me when I come in from bulk delivering. About 3,800 to 4,000 tons of feed go through this custom plant. I note that the average in a USDA survey was 2,500 tons per year for one man.

"I know some fellows claim they do not make a profit on their custom operations, but we do. And when I say a profit, I mean we deduct monthly depreciation on the machinery, the labor of one man, all power costs, etc."

In his figures, Mr. Fisher says he does not include any concentrate or other ingredients which might go into the mix.

Grinding Rates

The Eureka firm charges 15¢ cwt. for grinding chicken and hog feed, 10¢ cwt. for dairy and steer feed, and there is an additional charge of 5¢ cwt. for mixing those feeds. If farmers bring in their own materials just to be mixed, the charge is 10¢ cwt. for this mixing. The firm does no shelling of corn as many farmers have their own shellers or have it done by custom shellers.

"We used to have a row of farm trucks lined up waiting to get served before we got our new machinery," says Mr. Fisher, "and some of them got tired of waiting. Now we can grind and mix a ton of feed in a period of 15 to 20 minutes, depending upon conditions. And with the large mixers, we can often grind and mix for two customers at one time, in various stages of production. This speeds up service, too."

Mr. Fisher reports that the new machinery does a better mixing and grinding job than the old equipment and farmers know this. This quality grinding and mixing brings more of them here for service.

The mixers, grinder and molasses blender in the Eureka plant are located on the first floor. The new grinder can also handle baled hay. For grinding hay, the charge is 20¢ bale. The bale needs to be broken up into chunks, but even so the mill man can pitch it into the maw easily without choking the mill. Quite a few feeders in this region are incorporating chopped hay into their rations, especially in dairy feeds.

"Farmers really don't mind waiting for service when they can observe the new machinery and see how quickly and efficiently it handles a grind and mix job," points out Mr. Fisher.

He says that an average grind will run between one and two tons and for this purpose the large mixers are ideal. The firm's feed business is about 40% poultry feed, 20% dairy and 5% steer feed. About 90% of the feed which is sold at the mill goes through the grinders and mixers. Master Mix concentrates are used in the formulas supplied to farmers.

Uses Grain Bank

Mr. Fisher uses the grain bank plan. His Eureka quarters have a storage capacity of about 15,000 bu. There is no charge for storage if the grain goes through the mill. No. 2 corn and oats are used.

"Under this plan we have a lot of big feeders who merely phone or write us when to bring out feed," he says. "We have their formulas on hand, can grind and mix the feed (pulling grain from the bank) and then haul the feed out to them. Of course, we also have many customers who bring their own grain in and wait for it to be ground and mixed. We serve both types of customers."

The mill is operated entirely by Mr. Fisher and one man, although there is a girl bookkeeper. In contrast, the Gridley operation has two men and does only two thirds the grinding that Eureka does. The Goodfield mill does only one third as much as the Eureka mill, with one man handling the business.

"I figure I am saving selling time, too, by handling the bulk delivery," states Mr. Fisher. "I'm out on the road practically all the time, and I get a chance to talk to the customers as I deliver. I put the feed right where they want it, and I also check with them on how their present feed formulas are working out with milk cows, poultry flocks and steers. If there are recommendations to make I am right on the spot where I can check with the customer, and they like that."

Close Customer Contact

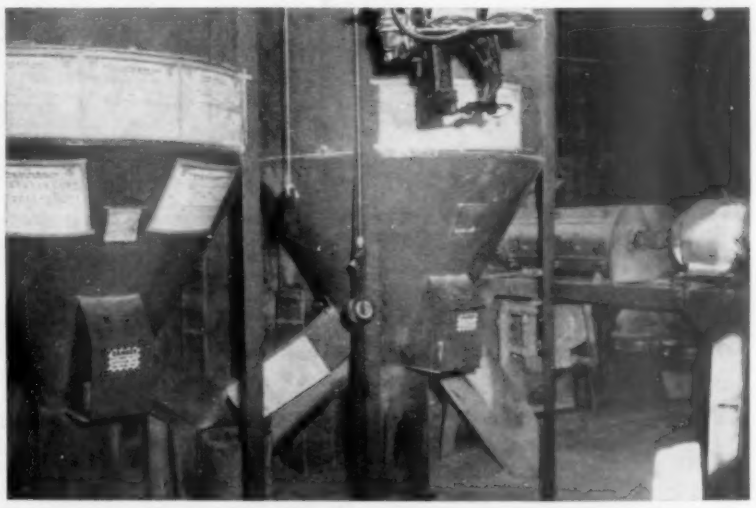
Mr. Fisher also says that by delivering feed to many farmers he can check on new farmers in the area whom his regular customers may tell him about. Then he can call on them on his way back to the mill, and often he gets a new customer.

"We find that by giving the farmer this 100% service, including the delivery of bulk feed, that we set up a feed program which he likes to stick with," says Mr. Fisher. "He isn't likely to experiment and go elsewhere for a trial batch or so, especially if we are giving him the kind of service he wants. Also, in

(Turn to EFFICIENCY, page 35)

Eli Fisher, right, manager of the Eureka Milling Co., believes that good service to customers of the mill goes beyond the service in the mill itself. When he makes bulk deliveries he checks with his customers to make recommendations or to talk over ideas with them as he is with this flock owner in the picture above.

This is an exterior view of the Eureka Milling Co. plant at Roanoke, Ill., a firm that found added profits in the installation of efficient machinery and service. Eureka also operates mills in the nearby towns of Gridley and Goodfield, Ill.



This is a view of the two Myers-Sherman mixers at the Eureka Milling Co. The molasses blender is at right.

Installation of new equipment like this Myers-Sherman hammer mill speeded up operations at Eureka Milling Co. The faster service, plus good service all along the line, nearly trebled the mill's mixing and grinding volume.

The Eureka Milling Co. uses the grain bank plan and charges no storage if grain goes through the mill. About 90% of the feed sold at the mill goes through the grinders and mixers. Eli Fisher, manager, is shown at left dumping oats from a weigh buggy into a pit. At right he is watching a truck load up for a bulk delivery.

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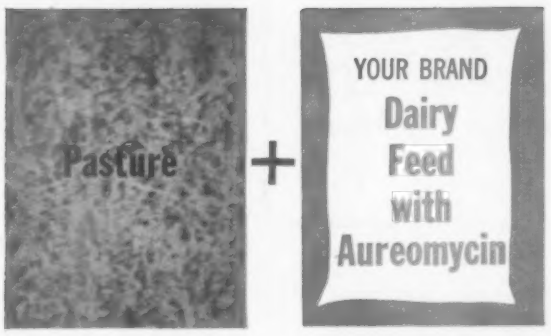

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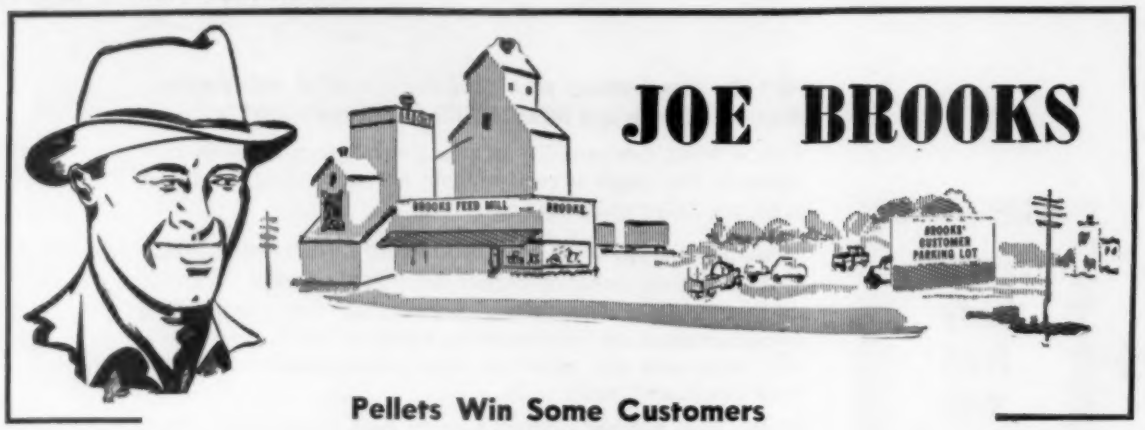

Pellets Win Some Customers

By Al P. Nelson

When Joe Brooks walked into his mill that summer morning, he saw Bill Huntington, a burly cattle and hog farmer, standing near Joe's new pellet machine. There was a smile on Huntington's face as he watched the warm pellets come onto the shaker screen.

The farmer took a handful of the pellets off the screen, smelled them, grinned and put them back. "Joe," he said, "they sure smell good, and I know they got extra feedin' value in them. I'm sure glad you got a pellet machine."

"Well, I am, too," declared Joe. "There's been a lot of demand for pellets in this area, and I want to please my customers, so I put one in. Business has been pretty good on pellets so far. And on crumblized feeds, too."

Huntington chuckled. "Now that you've got a pellet machine and a crumblizer, Joe, I kin tell you something. If you hadn't got this equipment, I would eventually have gone elsewhere, despite the good service you've given me. And I buy four tons of feed every ten days, Joe."

"I know you do, Bill, and I appreciate the business. And I was thinking of you when I bought the new equipment. You've been urging me to get it for more than a year."

Joe Gets a Compliment

The portly farmer nodded. "Joe, you made a wise move. I've been reading all about pellet feeding for months, especially the Purdue experiments. Livestock just seem to gain more on pellet feeds, and that extra weight means money in my pocket. I'm in this farmin' business for profit, not for my health."

Joe smiled. "I'm in the feed business for profit, too, Bill, and that's why I want to do everything I can to give my customers what they want. Now in your case, you have your own hog and cattle feed formulas, and you want them pelleted. That's custom pelleting. I'm switching some of my own brand of feed into pellets—Joe's Best Feeds—and maybe you'll consider using them, since they are pelleted."

The farmer shook his head. "Your feeds may be okay, Joe. I know you're selling a lot of tonnage. Lots of farmers swear by your feeds. But I'm just one of those cusses who's so particular he thinks his own formulas will slip a few more pounds on hogs and cattle per week than any other feed made."

Joe smiled. "Individual enterprise, eh? Well, more power to you, Bill."

Stapleton is Amused

A tall, lanky farmer named Ed Stapleton came ambling up and watched the pellet operations with an amused smile. "More fancy machinery, eh? Watch the price of feeds go up now!"

"It pays to use pellet feeds," put in Bill Huntington. "Why don't you use them, Ed?"

The lanky farmer shook his head. "Nope, I'm doin' all right the way I am. I got faith in the grind and mix and use 'em just as they come process. I don't believe in changin'."

"But if you get greater nutrition and weight gain with pellets and crumbles, you'll make more money!" Huntington said enthusiastically.

"Huh, and while I'm breakin' in my livestock and poultry on the pellets and crumbles, I'll maybe lose production. Then where'll I be? No thanks, I'll stick to the old way."

The warm pellets continued pouring over the screen and the three men watched them fascinated as they talked. Just then a stocky, overalled farmer with a wide straw hat came

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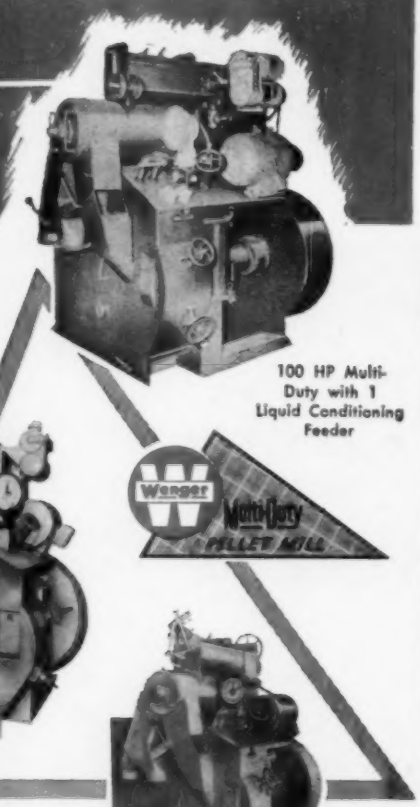

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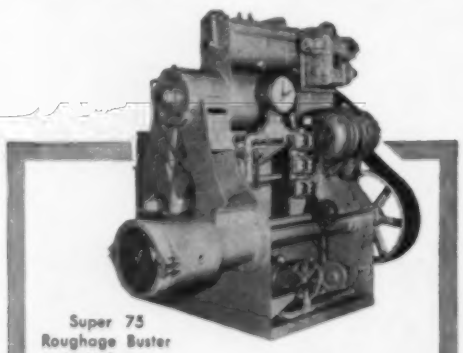
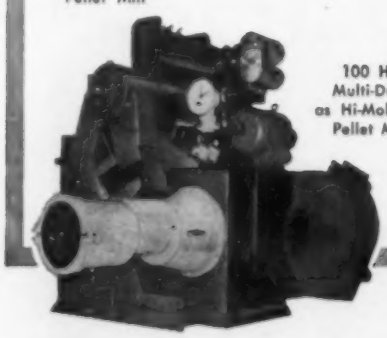


Super 75 Roughage Buster Hi-Molasses Pellet Mill



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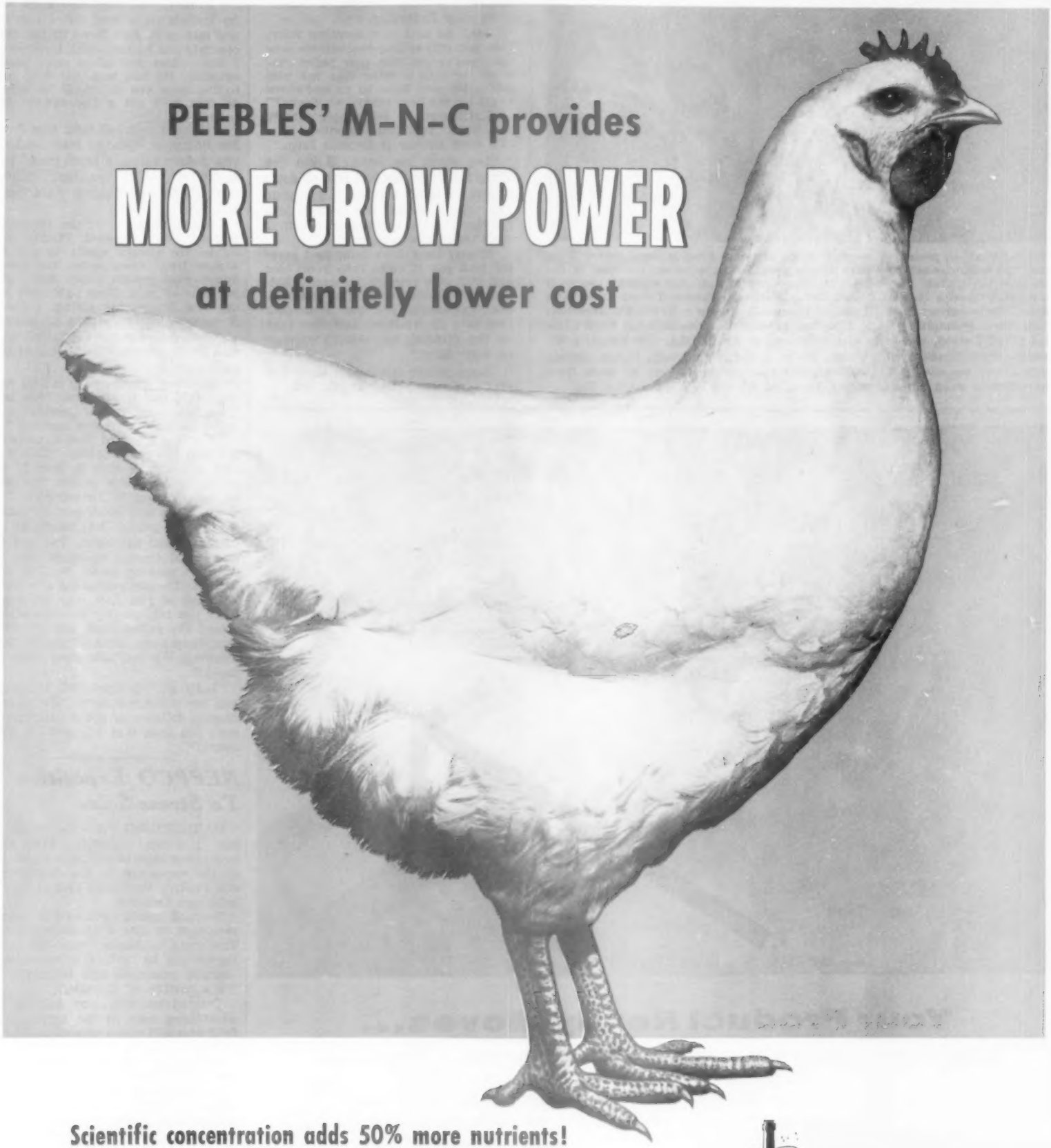

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Peebles' exclusive spray dried process retains all high activity unidentified growth factor benefits. M-N-C's spray dried texture assures you constant color and uniform distribution in feeds for lower mixing costs. Write or wire today for prices from the shipping point nearest you.

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32 PLANTS *Coast to Coast*

FEED FILM—A premiere showing of the Midwest Feed Manufacturers Assn. film, "New Horizons" was part of the program at a recent meeting of the Houston Feed Club. Shown talking about the film at the meeting are (left to right): Charles H. Slate, East Texas Network, Center, Texas; Lorne Van Stone, Uncle Johnny Mills, Houston; George E. Roesner, KPRC-TV, Houston; John Kern, Schmidt & Kern, Houston, president of the Houston Feed Club, and Lloyd Larson, executive vice president of the MFMA. The film is a 30-minute dramatization, with sound, of the modern feed story. It has already been shown on several TV stations. Purchase or rental may be made from the Midwest Feed Manufacturers Assn., 20 West 9th, Kansas City, Mo.

in. He was Stan Reimer, a farmer from over Cedarville way.

"Joe," he said in a booming voice, "are you still selling concentrate now that you've got this new pellet machine, or will a feller like me who mixes his own have to go elsewhere to git his ten bags every two weeks?"

"I still want to sell concentrate to you, Stan," returned Joe with a grin. "I'll even deliver it to your farm."

Stan shook his head. "I kin get along without delivery, Joe. I don't believe in fancy services. I get your 2% cash discount and then I also git the 1% for hauling it myself. I can't make money no easier."

"If you used Joe's bulk feed service he'd put it right into your bins and still give you 2% for cash," kidded Bill Huntington. "For that 1% delivery saving you put your own feed into the feeders. And also take on the grinding and mixing expense on your farm."

"Some fellers fall for all the gadgets," grinned Stan. "I just got an old hammer mill that ain't given me no trouble in a long time. I grind and mix in it. Just dump in the concentrate and let her whirl. Look what I save. And the hired man needs exercise. He kin haul the feed out to the hogs and cattle. If he didn't do that he'd get a tire around his belly."

"Maybe if you had bulk feed from Joe delivered right to your feeders, you wouldn't need a hired man," put in Bill. "And if you took pellets, boy, would your cattle and hogs gain."

"You remind me of the furniture dealer," Stan chuckled. "You're like he is. He always wants to sell us a new livin' room suite. The other one is good enough, I say. And I got my bills all paid. Even paid cash for my new Buick this spring. I guess it pays to grind and mix at home."

"Paid cash for my Chrysler, too," said Ed Stapleton. "It didn't hurt me none, either."

"Gosh and my Mercury is paid for, too," said Bill Huntington. "Say fellows, we're all makin' money, and we're all usin' different systems."

"That's it," smiled Joe, anxious to get into the conversation. "This is a free country. A man is free to do whatever he wants within the law to make money in his business. I'm tickled pink that all of you are making a good profit. That shows all of you are good managers. I've got to be a good enough manager, too, to continue making profit. So I've got merchandise and machinery to satisfy all three of you. Say, why the heck don't you fellows step into the salesroom? It's coffee time, and my wife sent down some fresh doughnuts this morning. We can talk some more in there."

"Let's go," grinned Bill Huntington, the pellet customer. "Here's our chance, fellows, to get a little more outa Joe than that 2% and 1% discount."

NEPPCO Exposition To Stress Sales

HARRISBURG, PA.—A sales-building "jamboree" featuring sales and promotion experts will be a highlight of the exposition of the Northeastern Poultry Producers Council to be held here Oct. 7-9.

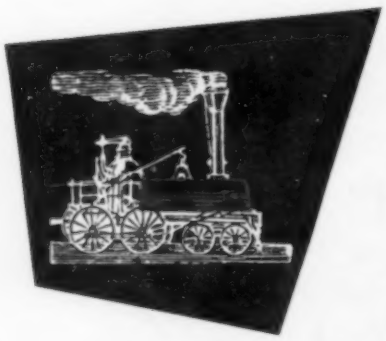
Lead-off speaker will be Jeff Coats, president of the Professional Sales Training Co., Akron, Ohio. His basic theme will be "selling is more than learning gimmicks and techniques—it's a matter of attitude."

Teamed up with him will be an advertising man in the agricultural field who will stress promotional programs.

The general educational program of this year's NEPPCO exposition will be concentrated into a two-hour afternoon session each day. Separate programs have been arranged for turkey growers and poultry youth.

Your Product Really Moves...

In Crown "Caddie," the Multiwall with a Handle.



Let Crown "Caddie," the Multiwall with a handle, open up brand new markets for your product by making it easy to *carry* . . . easy to *buy*. With the "Caddie" handle, an exclusive feature with Crown Zellerbach, it's easy to carry bulky bagged items like charcoal briquets, pet foods and fertilizer.

Here's why you should consider packing *your* product in "Caddie":

STRONG: Handle is strong, paper-covered sisal, sewn through all three plies. Sturdy Multiwall bag is sift-proof, contamination-proof, pilfer-proof.

CONVENIENT: "Caddie" is just the right size to package those "in-between" weights of ten to forty pounds.

ATTRACTIVE: Can be custom printed with your brand design and sales message in up to 3 colors. Also available plain.

VERSATILE: Excellent for packaging such products as pet food, fertilizer, seed, gypsum, peat moss, charcoal, sugar, salt, detergent.

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SERVICE BULLETIN for members of the feed and poultry industries

Broiler Production Charts

Daily Broiler Feed Consumption
(Per 100 Birds)

Age of Birds (wks.)	Pounds of Feed
1	2.9
2	4.0
3	6.5
4	9.2
5	11.0
6	14.5
7	16.0
8	18.5
9	21.0
10	23.0
11	25.5
12	29.0

Daily Broiler Water Consumption
(Per 100 Birds)

Age of Birds (wks.)	Gallons of Water
1	.45
2	1.1
3	1.5
4	2.0
5	2.4
6	2.7
7	3.2
8	4.1
9	4.2
10	4.9
11	5.2
12	5.5

Broiler Feed Conversion

(Pounds of Meat Per 100 Pounds of Feed)

Meat (Lb.)	Feed Conversion	Meat (Lb.)	Feed Conversion
30	3.33	40.5	2.47
30.5	3.28	41	2.44
31	3.23	41.5	2.41
31.5	3.18	42	2.38
32	3.13	42.5	2.35
32.5	3.08	43	2.33
33	3.03	43.5	2.30
33.5	2.99	44	2.27
34	2.94	44.5	2.25
34.5	2.90	45	2.22
35	2.86	45.5	2.20
35.5	2.82	46	2.17
36	2.78	46.5	2.15
36.5	2.74	47	2.13
37	2.70	47.5	2.11
37.5	2.67	48	2.08
38	2.63	48.5	2.06
38.5	2.60	49	2.04
39	2.56	49.5	2.02
39.5	2.58	50	2.00
40	2.50		

Prepared for members of the feed and poultry industries in the interests of better poultry health and nutrition. Merck & Co., Inc., Chemical Division, Rahway, New Jersey. Extra copies of this chart, and other articles in the series of Service Bulletins, are available on request.

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Double Check

Critical B Vitamin Levels in your

Chick Starter Rations

Modern broiler and chick starter rations with their high energy levels can jeopardize essential B vitamin intake two crucial ways. High energy ingredients like corn, fats, etc. are poor sources of B vitamins; at the same time the high energy content of these feeds decreases total feed consumption.

Since vitamin deficiencies rarely occur singly, and since natural foods vary in vitamin content, it's clearly good business to double check all B vitamin levels every time you change your formula or source of supply.

And don't forget to specify Merck Vitamin Mixtures because uniform vitamin dispersion is absolutely essential if every chick is to get the vitamins necessary to metabolize the increased calories.

Vitamin	Level for broiler starter (gm./ton)	Level for chick starter (gm./ton)
Riboflavin	5	5
Calcium Pantothenate	14	14
Niacin	35	30
Choline Chloride	1200	1200
Vitamin B_{12} (additional fortification) (mg./ton)	12	6

Ask the Merck Man

Technical information concerning microingredients is vital for the profitable use of these spark plugs for modern feeds. Yet scientific data on both nutritional and therapeutic microingredients are often hard to get, hard to find or so complex as to limit ready application. You can save time and make this essential information more usable by relying on your Merck Man. With one of the largest libraries, research groups and technical service staffs in the industry to draw on, Merck literature ranges from such diverse items as the recent monograph on "Procaine Penicillin"—surveying the use of this antibiotic in nutrition, disease, and stress—to the newsy Merck Agricultural Memo especially developed to keep feed executives up to date on recent scientific findings.

Research and Production for Better Poultry and Animal Nutrition

MERCK

VITAMIN MIXTURES and VITAMINS

MERCK & CO., INC., Chemical Division, Rahway, N. J.

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"I told you Uncle Henry had all his money tied up in his business."

Beef Trial Shows Value of Treating With Grub Systemics

DODGE CITY, KANSAS — The economic value of controlling cattle grubs with one of the new systemic insecticides was pointed up in a feeding trial held here recently.

Roy L. Cuff, southeastern region, Livestock Conservation, Inc., reporting on the test, said the treatment brought an average added value of $5.71 per head over cost of the systemic during the test, which ran from 78 to 109 days. Armour & Co., Kansas City, provided the heifers and the systemic.

In the test, 453 beef-type heifers were sorted into lots according to weights, and 225 were given two 15-gram boluses of ET-57. Of the 225, 120 had grubs up in the backs at time of treatment and examination showed 5% of the grubs in the third instar stage. Only two of the boluses administered were found spit up in the holding pen.

The control lot at the start totaled 228 heifers. These averaged 574.1 lb., or 52½ lb. heavier than the average heifer in the treated lot. One control was sold and three died. The cattle were not all marketed on the same date, but finished heifers were "topped out" and sold when they reached desired weight and finish. The test would be typical for the average cattle feeder of the region.

Treated heifers stopped rubbing and scratching for lice three days after treatment. The controls were sprayed with a mixture that killed the live lice and apparently some of the grubs up in the backs of the cattle.

Studies on the killing floor showed that although 120 of the 225 treated heifers had grubs up in the back when treated, only one live grub was found in each of 14 head of the treated animals at slaughter, compared with a count of 187 controls with live grubs.

There was less than 1 lb. carcass trim in the treated lot and 23 lb. carcass trim in the untreated lot.

Average weight of the hides of the treated lot was 62.8 lb., compared with 61.1 lb. for the controls. A hide with five or more grub holes is graded No. 2 and is devalued. In the treated lot, 154 hides were graded No. 1 and 71 graded No. 2. In the controls, only 33 hides graded No. 1 and 191 graded No. 2.

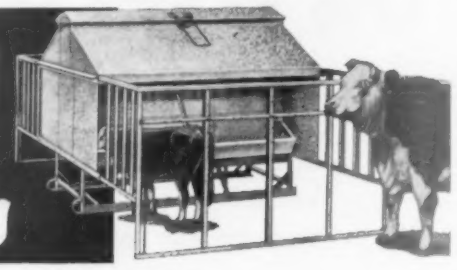
Average value of the hides from the treated lot was $4.84, as compared with a value of $3.80 on the controls. This added value on hides alone paid for the systemic.

The treated lot averaged 725.36 lb. when finished—an average gain of 203.76 lb., or 2.1318 lb. gain daily. Animals in the untreated lot averaged 743.4 lb. finished weight—an average weight gain of 169.3 lb. over the period, or daily gain of 1.9055 lb.

Adding up their findings, researchers in charge of the test reported that the added daily gain of 0.2263 lb. for the treated animals meant 4,876.54 extra lb. of gain. At 25½¢ lb., this totaled $1,243.52 more income from the treated animals.

Difference in hide value gave the treated animals $234 more income and the added value of carcasses not discounted was another $32.36. This gives a total of $1,509.88 extra income from the treated lot. Subtracting the cost of the ET-57, which was $225, the net added value from treatment was $1,284.88 or $5.71 per animal.

BROWER CREEP FEEDER FOR *Calves*



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Use of Fats and Oils in Formula Feeds

A comprehensive study by the USDA reveals a rapid growth in use of fats by the nation's feed industry

By Harry O. Doty, Jr.
U.S. Department of Agriculture

EDITOR'S NOTE: Many feed men will be interested in the accompanying U.S. Department of Agriculture report on the use of fats and oils in feeds. The report, titled "Fats and Oils Consumption in Prepared Animal Feeds," shows the quantities and types of fats and oils being used in formula feeds. It also relates use to size of mill and different regions in the country. The report is based on a study made by the marketing research division of USDA's Agricultural Marketing Service. The study is part of a USDA research program to assist in development of markets for agricultural products. The basic data were collected and tabulated by the Bureau of the Census. The study was conducted under the direction of Marshall E. Miller, and the initial plans were developed by Morris W. Sills, both of the market development branch. The author is an agricultural economist with the market development branch.

v v

SUMMARY: The mixed feed industry in the U.S. in 1956 used about 324 million pounds of fats and oils in prepared animal feeds, and was the second largest domestic outlet for inedible tallow and grease. Only the soap industry consumed a larger quantity (813 million pounds).

Consumption of fats and oils in mixed feeds in 1956 was reported by considerably more than one third of the manufacturing establishments surveyed. Use of fats and oils in prepared animal feeds more than doubled in comparison with use in feeds two years earlier (1954).

The feed industry used about 18% of all the inedible tallow and grease consumed in the U.S. in 1956. These results are based on a special survey of feed manufacturing establishments conducted jointly by the Bureau of the Census and the Agricultural Marketing Service.

More recent reports by the Bureau of the Census (Facts for Industry—Fats and Oils) indicate continued increases in usage in 1957. While these reports are not strictly comparable to the special industry-wide survey on usage in 1956, because of differences in coverage of responding establishments, the 1958 census of manufactures will yield information on usage of fats in feeds comparable to that of this survey.

Production of prepared animal feeds amounted to 28.8 million tons in 1956. Plants adding fats to feeds produced almost three fourths of this total, and fats constituted about .8% of all the prepared animal feeds these plants manufactured in 1956.

Tallow and grease together accounted for approximately 300 million pounds, or 92%, of the total quantity of fats and oils going into mixed feeds in 1956. Tallow alone amounted to 73% of the total; grease, 19%; soapstock and foots, 2%, and other fats and oils, 6%.

The principal items were prime tallow, which accounted for 29% of the total fats and oils added to animal feeds; fancy tallow, 26%, and yellow grease, 13%. These grades of tallow and grease made up 68% of all fats and oils used in prepared animal feed in 1956.

Large feed mills accounted for about 74% of the fats and oils used by the feed industry; medium-size mills, 19%, and small mills, 7%.

The quantity of fats and oils incorporated into mixed feed varied widely among the nine census regions. The major consuming regions were the East North Central, South Atlantic and Middle Atlantic, which together accounted for about 57% of fats and oils used.

PURPOSE OF SURVEY: The purpose of this study was to determine the quantities and types of fats and oils being used in mixed feeds and the importance of this relatively new outlet in absorbing surplus fats and oils.

At the time that production of tallow and grease was increasing by over a billion pounds, from 1947 to 1956, about two thirds of the soap market, which formerly took most of the inedible fats, was taken over by synthetic detergents.

The possibilities of expanding the use of fats in feeds were made evident through animal feeding experi-

TABLE 1. Consumption of fats and oils in feeds, by size of mill, 1956.

Kind and grade	Total all mills	Size of Mill 1/ Less than 10,000 tons	10,000 to 50,000 tons	50,000 tons and over
	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds
Tallow:				
Fancy	83,852	1,269	13,194	69,389
Prime	94,073	2,442	13,908	77,723
Other tallow	58,205	12,682	15,598	29,925
Total	236,130	16,393	42,700	177,037
Grease:				
White	7,661	705	1,656	5,300
Yellow	41,486	2,318	11,569	27,599
Other grease	13,247	1,248	1,411	10,588
Total	62,394	4,271	14,636	43,487
Soapstock or foots:				
Cottonseed	2,328	458	255	1,615
Soybean	2,152	772	1,069	311
Other soapstocks or foots	2,236	116	935	1,185
Total	6,716	1,346	2,259	3,111
Other fats and oils 2/	18,923	2,214	1,399	15,310
Total all fats and oils	324,163	24,224	60,994	238,945
	Number	Number	Number	Number
Mills manufacturing mixed feeds:				
Adding fats	697	313	183	201
Not adding fats	1,221	1,046	133	42
Total	1,918	1,359	316	243

1/ In terms of annual production of mixed feed.
2/ Includes other animal and vegetable oils, marine oils, and fatty acids. Does not include formulated vitamin oils or the oil content of such materials as cottonseed meal, soybean meal, fish solubles, tankage, meat scrap, and unrendered animal fats.

TABLE 2. Proportion of total consumption of various fats and oils used in feed, by size of mill, 1956.

Kind and grade	Total all mills	Size of mill 1/ Less than 10,000 tons	10,000 to 50,000 tons	50,000 tons and over	Total
	1,000 pounds	Percent	Percent	Percent	Percent
Tallow:					
Fancy	83,852	1.5	15.7	82.8	100.0
Prime	94,073	2.6	14.8	82.6	100.0
Other tallow	58,205	21.8	26.8	51.4	100.0
Total	236,130	6.9	18.1	75.0	100.0
Grease:					
White	7,661	9.2	21.6	69.2	100.0
Yellow	41,486	5.6	27.9	66.5	100.0
Other grease	13,247	9.4	10.7	79.9	100.0
Total	62,394	6.8	23.5	69.7	100.0
Soapstock or foots:					
Cottonseed	2,328	19.7	11.0	69.3	100.0
Soybean	2,152	35.9	49.7	14.4	100.0
Other soapstocks or foots	2,236	5.2	41.8	53.0	100.0
Total	6,716	20.1	33.6	46.3	100.0
Other fats and oils 2/	18,923	11.7	7.4	80.9	100.0
Total all fats and oils	324,163	7.5	18.8	73.7	100.0

1/ In terms of annual production of mixed feed.
2/ Includes other animal and vegetable oils, marine oils, and fatty acids. Does not include formulated vitamin oils or the oil content of such materials as cottonseed meal, soybean meal, fish solubles, tankage, meat scrap, and unrendered animal fats.

TABLE 3. Total consumption and percentage distribution of various fats and oils, by size of mill, 1956.

Kind and grade	Total all mills	Size of mill 1/ Less than 10,000 tons	10,000 to 50,000 tons	50,000 tons and over
	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds
Total all fats and oils	324,163	24,224	60,994	238,945
	Percent	Percent	Percent	Percent
Tallow:				
Fancy	25.9	5.2	21.6	29.1
Prime	29.0	10.1	22.8	32.5
Other tallow	17.9	52.4	25.6	12.5
Total	72.8	67.7	70.0	74.1
Grease:				
White	2.4	2.9	2.7	2.2
Yellow	12.8	9.6	19.0	11.6
Other grease	4.1	5.1	2.3	4.4
Total	19.3	17.6	24.0	18.2
Soapstock or foots:				
Cottonseed	0.7	1.9	0.4	0.7
Soybean	0.7	3.2	1.8	0.1
Other soapstock or foots	0.7	0.5	1.5	0.5
Total	2.1	5.6	3.7	1.3
Other fats and oils 2/	5.8	9.1	2.3	6.4
Grand total	100.0	100.0	100.0	100.0

1/ In terms of annual production of mixed feed. 2/ Includes other animal and vegetable oils, marine oils, and fatty acids. Does not include formulated vitamin oils or the oil content of such materials as cottonseed meal, soybean meal, fish solubles, tankage, meat scrap, and unrendered animal fats.

ments. Many of the problems, particularly those of oxidation and rancidity of fats, which had to be solved to make this outlet for fats feasible, were worked out in the research program of the eastern utilization research and development division of the U.S. Department of Agriculture, including research sponsored under contracts.

The addition of fats to feed formulas has a number of advantages both for manufacturers of mixed feeds and for livestock feeders. The addition of fats to feeds has also enabled processors to extract practically all of the high-priced oil from oilseeds, replacing it with low-priced inedible animal fats and refiners' foots.

The use of fats in feeds has grown rapidly in the past few years. However, producers and processors heretofore had little specific information regarding usage on which to appraise the importance of the outlet or to base plans for expanding the use of fats in feeds. Therefore, data were obtained by the Bureau of the Census for the USDA from 1,918 plants manufacturing prepared animal feed on their use of animal and vegetable fats and oils in mixed feeds for the calendar year 1956.*

No data were collected on the use of fats and oils by types of feed. Further study on practices followed and the factors involved in adding fats to the various types of feeds will be carried out to enable a more complete appraisal of market potentials.

USE OF FATS AND OILS IN FEEDS: In 1956 the feed industry used about 324 million pounds of fats and oils in prepared animal feeds (tables 1-6).† Comparable data for earlier years are not available. However, in the 1954 census of manufactures, the feed manufacturing industry reported a total usage of fats and oils of 151 million pounds. This included some other uses in addition to feeds. These data indicate that in the two-year period following 1954, fats and oils consumed in prepared animal feeds more than doubled.

Monthly figures on use of fats and oils in feeds are reported by the Bureau of the Census in its Facts for Industry—Fats and Oils, series M28-2-127. These data are not strictly comparable because they do not include many of the establishments which reported using fats in feeds in the special 1956 survey.

However, the current reports indicate that use of fats in feeds has continued to increase at a rapid pace, and that use in 1957 might well be some 30% higher than in 1956. The 1958 census of manufactures will yield information comparable to that found in the 1956 survey.

In the special industry-wide survey of 1956, the Bureau of the Census reported 28.8 million tons of prepared animal feeds produced.‡ Well over one third of the plants producing prepared animal feeds also reported consumption of fats and oils in their manufacture (table 1). Manufacturing plants using fats and oils in feeds produced almost three fourths of the total prepared animal feeds in 1956. Fats constituted about 0.8% of the total weight of prepared animal feeds manufactured in these plants (table 7).

Many kinds and grades of animal and vegetable fats and oils are suitable for incorporation in feeds and feed ingredients. Because of the cost, the fats and oils used in feeds are usually limited to those commonly referred to as inedible fats and oils. Their characteristics vary considerably in such factors as stability, hardness (titer), free fatty acid content (F.F.A.), impurities (moisture and insoluble and unsaponifiable material, abbreviated M.I.U.) and color. The characteristics of the commonly recognized grades of inedible tallows and greases are outlined in table 8.

The approximately 300 million pounds of inedible tallow and grease consumed by the feed industry in 1956 made that industry the second largest domestic outlet for inedible tallow and grease (table 1). Only the soap industry in 1956 consumed a larger quantity of inedible tallow and grease (813 million pounds). The feed industry used about 18% of all the inedible tallow and grease consumed in the U.S. in 1956.

Tallow accounted for 73% of the total volume of fats and oils used in mixed feeds in 1956 (figure 1). Grease constituted 19% of all fats and oils added to feeds; soapstocks and foots, 2%; and other fats and oils, 6%.¶ Tallow and grease together accounted for 92% of all the fats and oils used in factory-prepared feeds.

To give a better picture of the quantities of the various kinds and grades of inedible fats and oils used in mixed feeds, the categories mentioned above were further broken down. Prime tallow accounted for 29% of the total fats and oils used in animal feeds; fancy tallow, 26%, and yellow grease, 13% (figure 1). These grades of inedible tallow and grease together made up 68% of all the fats and oils used in prepared animal feeds in 1956.

Tallows other than prime or fancy constituted 18% of the quantity of fats and oils used in mixed feeds; other fats and oils, including marine oils, 6%; greases other than white or yellow, 4%; white grease, 2%, and cottonseed, soybean and other soapstocks and foots each contributed .7% of the total.

Use by Size of Mill

Large variations by size of mills occurred in the quantity of fats and oils incorporated into feeds. Large mills, manufacturing at least 50,000 tons of mixed feed annually, used 74% of all the fats and oils added to prepared feed in 1956; medium-sized mills, manufacturing 10,000-

TABLE 4. Consumption of fats and oils in feeds, by regions, 1956.

Kind and grade	United States	Region								
		New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds
Tallow:										
Fancy	83,852	1/	30,661	17,114	5,132	4,819	1/	848	559	4,221
Prime	94,073	--	1,094	8,668	13,877	32,672	12,798	20,555	1,565	2,844
Other tallow	58,205	1/	2,380	17,395	6,060	9,778	1/	10,640	82	7,598
Total	236,130	15,160	34,135	43,177	25,069	47,269	22,408	32,043	2,206	14,663
Grease:										
White	7,661	--	1/	909	4,225	1/	1/	1/	1/	--
Yellow	41,486	--	6,085	18,108	4,471	9,211	3,087	1/	--	1/
Other grease	13,247	--	1/	3,473	1,555	1/	1/	1,303	--	1/
Total	62,394	--	7,728	22,490	10,251	11,353	7,578	2,504	1/	1/
Soapstock or foots:										
Cottonseed	2,327	1/	1/	1/	1/	1/	1/	1/	1/	1/
Soybean	2,145	1/	1/	1/	1/	1/	1/	1/	1/	1/
Other soapstocks or foots	2,244	1/	1/	1/	1/	1/	1/	1/	1/	1/
Total	6,716	276	388	816	1,047	1,303	139	2,086	1/	1/
Other fats and oils 2/	18,923	--	7,904	3,938	493	3,216	56	399	266	2,651
Total all fats and oils	324,163	15,436	50,155	70,421	36,860	63,141	30,181	37,032	2,500	18,437
	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
Mills manufacturing mixed feeds:										
Adding fats	697	16	91	145	131	99	51	62	21	81
Not adding fats	1,221	32	149	170	230	216	116	138	55	115
Total	1,918	48	240	315	361	315	167	200	76	196

1/ Withheld to avoid disclosing figures for individual companies.
2/ Includes other animal and vegetable oils, marine oils, and fatty acids. Does not include formulated vitamin oils or the oil content of such materials as cottonseed meal, soybean meal, and fish solubles, tankage, meat scrap, and unrendered animal fats.

¶Includes other animal and vegetable oils, marine oils, and fatty acids. Does not include formulated vitamin oils or the oil content of such materials as cottonseed meal, soybean meal and fish solubles, tankage, meat scrap and unrendered animal fats.

TABLE 5. Proportion of total consumption of various fats and oils used in feeds, by regions, 1956.

Kind and grade	United States	Region									
		New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	Total
	1,000 pounds	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Tallow:											
Fancy	83,852	1/	36.6	20.4	6.1	5.7	1/	1.0	0.7	5.0	100.0
Prime	94,073	--	1.2	9.2	14.8	34.7	13.6	21.8	1.7	3.0	100.0
Other tallow	58,205	1/	4.1	29.9	10.4	16.8	1/	18.3	0.1	13.1	100.0
Total	236,130	6.4	14.5	18.3	10.6	20.0	9.5	13.6	0.9	6.2	100.0
Grease:											
White	7,661	--	1/	11.9	55.1	1/	1/	1/	1/	--	100.0
Yellow	41,486	--	14.7	43.6	10.8	22.2	7.4	1/	--	1/	100.0
Other grease	13,247	--	1/	26.2	11.7	1/	1/	9.8	--	1/	100.0
Total	62,394	--	12.4	36.0	16.4	18.2	12.1	4.0	1/	1/	100.0
Soapstock or foots:											
Cottonseed	2,327	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/
Soybean	2,145	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/
Other soapstocks or foots	2,244	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/
Total	6,716	4.1	5.8	12.2	15.6	19.4	2.1	31.1	1/	1/	100.0
Other fats and oils 2/	18,923	--	41.8	20.8	2.6	17.0	0.3	2.1	1.4	14.0	100.0
Total all fats and oils	324,163	4.7	15.5	21.7	11.4	19.5	9.3	11.4	0.8	5.7	100.0

1/ Withheld to avoid disclosing figures for individual companies.
2/ Includes other animal and vegetable oils, marine oils, and fatty acids. Does not include formulated vitamin oil or the oil content of such materials as cottonseed meal, soybean meal, fish solubles, tankage, meat scrap, and unrendered animal fats.

*Includes establishments which reported total shipments of prepared animal feeds valued at more than $20,000 in the 1954 census of manufactures. Establishments having shipments of prepared animal feeds valued at $20,000 or less were excluded. These small mills accounted for about 3% of all mixed feed produced in 1954. Also excluded were such firms as grain elevators, custom or grist mills, and farm-supply stores which may engage in feed mixing, but whose primary activity is not manufacturing. Alfalfa dehydrator operators who did not manufacture mixed feeds were not included in the study, although they may use fats and oils.

†Excluded by definition of fats and oils added to feeds were formulated vitamin oils and the oil content of such materials as cottonseed meal, soybean meal, fish solubles, tankage, meat scrap and unrendered animal fats. Also excluded were fats and oils added to frozen dog or cat food.

‡U.S. Department of Commerce, Bureau of the Census Facts for Industry. Production of Mixed Feeds in Manufacturing Establishments, 1956, Series M20E-06, March 20, 1958.

TABLE 6. Total consumption and percentage distribution of various fats and oils used in feeds, by regions, 1956.

Kind and grade	United States	Region: New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds
Total fats and oils..	324,163	15,436	50,155	70,421	36,860	63,141	30,181	37,032	2,500	18,437
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Tallow:										
Fancy.....	25.9	1/	61.1	24.3	13.9	7.6	1/	2.3	22.3	22.9
Prime.....	29.0	--	2.2	12.3	37.7	51.7	42.4	55.5	62.6	15.4
Other tallow.....	17.9	1/	4.7	24.7	16.4	15.5	1/	28.7	3.3	41.2
Total.....	72.8	98.2	68.0	61.3	68.0	74.8	74.2	86.5	88.2	79.5
Grease:										
White.....	2.4	--	1/	1.3	11.5	1/	1/	1/	1/	--
Yellow.....	12.8	--	12.1	25.7	12.1	14.6	10.2	1/	--	1/
Other grease.....	4.1	--	1/	4.9	4.2	1/	1/	3.5	--	1/
Total.....	19.3	--	15.4	31.9	27.8	18.0	25.1	6.8	1/	1/
Soapstock or foots.										
Cottonseed.....	0.7	1/	1/	1/	1/	1/	1/	1/	1/	1/
Soybean	0.7	1/	1/	1/	1/	1/	1/	1/	1/	1/
Other soapstocks or foots.....	0.7	1/	1/	1/	1/	1/	1/	1/	1/	1/
Total.....	2.1	1.8	0.8	1.2	2.8	2.1	0.5	5.6	1/	1/
Other fats and oils 2/	5.8	--	15.8	5.6	1.4	5.1	0.2	1.1	10.6	14.4
Grand total....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Withheld to avoid disclosing figures for individual companies.
2/ Includes other animal and vegetable oils, marine oils and fatty acids. Does not include formulated vitamin oil or the oil content of such materials as cottonseed meal, soybean meal, fish solubles, tankage, meat scrap, and unrendered animal fats.

50,000 tons of mixed feeds annually, accounted for 19%, and small mills, manufacturing less than 10,000 tons of mixed feeds annually, accounted for 7% (table 2).

Mills of all three sizes used tallow principally, followed by grease, other fats and oils, and soapstock and foots, in that order (table 3). The only exception was in medium-size mills, where soapstock and foots were used in slightly larger quantities than other fats and oils.

The proportions of the various kinds and grades of fats and oils used in feeds varied among the three sizes of mills even though the order of ranking did not change. Tallow made up from 68-74% of all the fats and oils used in feeds, depending on size of mill. The proportion of the total accounted for by tallow increased as the size of mill increased (table 3).

There were wide differences in the grades of tallow used by mills of different sizes. In small mills, 52% of the total fats used in prepared feeds were tallows other than fancy or prime. In medium-size mills, fancy, prime and other tallows each accounted for 22-26% of the total fats employed. In large mills, fancy and prime tallow each accounted for about 30% of the total fats used.

Grease made up 24% of all fats added to feed in medium-size mills, compared with 18% in both the small and large mills. The proportions of various grades of grease used in feeds were similar for mills of each size, except that medium-size mills used a much higher proportion of yellow grease (table 3). Yellow grease accounted for 19% of all fats and oils used in these mills.

Soapstock and foots made up only 1-6% of the fats and oils used in feeds; the proportion decreased as the size of mill increased. Relative importance of other fats and oils varied among sizes of mills. In small mills they accounted for 9% of the total fats incorporated into feeds. In medium-size mills, they made up 2%; in large mills, 6% of the total was composed of these fats and oils (table 3).

Use by Regions

Large variations occurred among the nine census regions of the U.S. in the quantity of fats and oils consumed in feeds in 1956 (table 4). The feed plants in the East North Central region used 22% of all the fats and oils incorporated in feeds, those in the South Atlantic used 19.5% and those in the Middle Atlantic, 15.5% (figure 2).

Feeds manufactured in these three regions contained 57% of the total fats and oils added to feeds. Feed mixed in the West North Central and West South Central regions each contained 11% of the total fats and oils used in feeds, and those produced in the East South Central region, 9%.

Feeds manufactured in the other three regions (Pacific, New England and Mountain) took only 11% of the total fats and oils used in feeds (table 5). (For regional comparisons of fats and oils used with the quantity of feeds manufactured by plants adding fats, see table 7.)

Wide variation occurred among regions in the kinds and grades of fats, and oils incorporated in prepared feeds. In each of the nine regions, over 60% of the fats and oils added to feeds was tallow (table 6). The proportion of tallow varied from 61% in the East North Central region to 98% in New England. There appeared to be no consistency among regions in the grades of tallow used.

In several regions grease made up a large proportion of the fats and oils incorporated into feeds, while in other regions practically no grease was used.

In the East North Central region grease was the highest proportion, 32%, of all fats and oils incorporated into feeds (table 6). There was little or no consistency in the grades of grease employed. In the East North Central region, 26% of all fats and oils used in feeds was yellow grease, while in the West North Central region, white grease and yellow grease

TABLE 7. Prepared animal feed produced, fats and oils used, and percentage fat used is of feed produced by plants adding fats, 1956.

Region	Prepared animal feed produced	Plants adding fats: Prepared animal feed produced	Fats and oils used	Percentage fat used is of feed produced
	1,000 pounds	1,000 pounds	1,000 pounds	Percent
United States	56,035,997 1/	41,128,309	324,163	0.8
	Percent	Percent	Percent	Percent
Regions				
New England.....	5.0	5.5	4.7	0.7
Middle Atlantic....	12.5	14.2	15.5	0.9
East North Central.	20.1	23.4	21.7	0.7
West North Central.	18.6	17.8	11.4	0.5
South Atlantic.....	12.9	12.3	19.5	1.2
East South Central.	7.5	8.1	9.3	0.9
West South Central.	10.6	8.9	11.4	1.0
Mountain.....	2.2	1.4	0.8	0.4
Pacific.....	10.6	8.4	5.7	0.5
Total.....	100.0	100.0	100.0	--

1/ Bureau of the Census inflated this figure about 3 percent to take into account establishments with shipments under $20,000 in the 1954 Census of Manufactures which were not included in the survey. The inflated figure was published in Bureau of the Census, Facts for Industry Production of Mixed Feeds in Manufacturing Establishments 1956, Series M20E-06, March 20, 1958.

Figure 1

By Kind and Grade

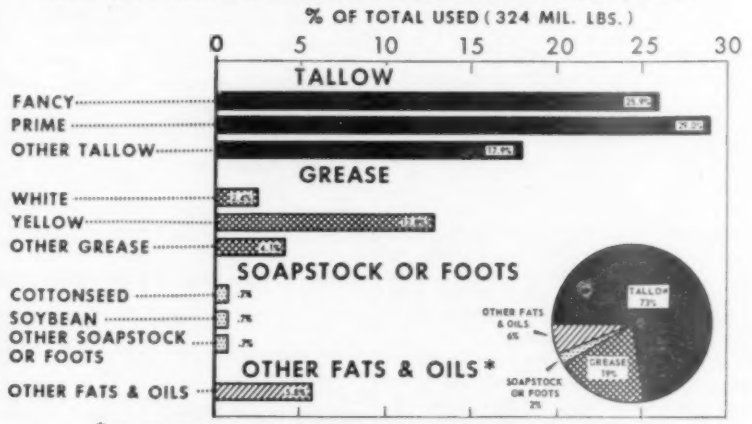
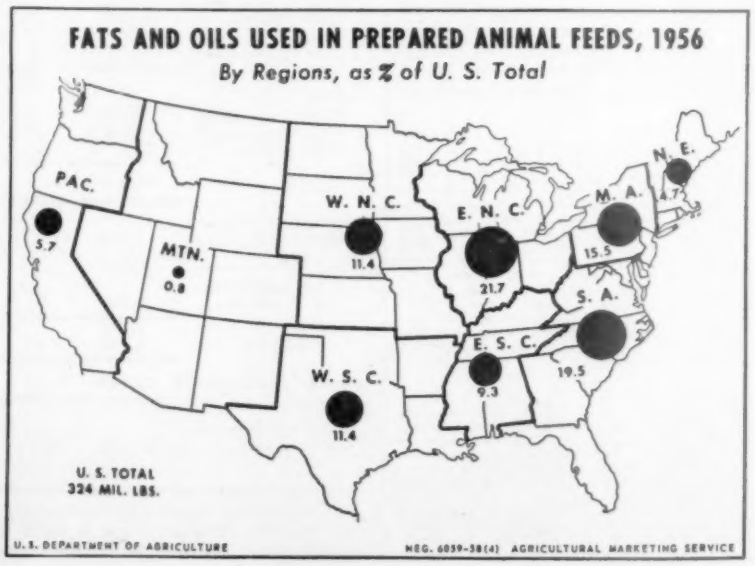


Figure 2



each accounted for about 12% of all fats used.

Soapstock or foots were not used in large quantities in feed in any region. However, they were used more in the West South Central region than in any other. There they accounted for 6% of all fats added to feeds.

Differences occurred among regions in the use of other fats and oils. Larger quantities were used in feeds in the Middle Atlantic and Pacific than in other regions (table 6). Other fats and oils made up 16% in the Middle Atlantic region, and 14% in the Pacific region, of the total fats and oils used in feeds.

TABLE 8. Characteristics of inedible grades of animal fats.

Fat	Titer 1/ (minimum)	F.F.A. 2/ (maximum)	M.I.U. 3/ (basis)	F.A.C. color 4/ maximum untreated and unbleached
	Degrees Centigrade	Percent	Percent	
Tallow:				
Fancy.....	41.5	4	1	7
Choice.....	41.0	5	1	9
Prime.....	40.5	6	1	13 or 11B
Special.....	40.5	10	1	19 or 11C
No. 1.....	40.5	15	2	33
No. 3.....	40.5	20	2	37
No. 2.....	40.0	35	2	No color
Grease:				
Choice white..	37.0	4	1	11
A, white.....	37.0	8	1	15
B, white.....	36.0	10	2	19 or 11C
Yellow.....	36.0	15	2	37
House.....	37.5	20	2	39
Brown.....	38.0	50	2	No color

1/ Fats with melting point of 40° C. or higher are tallows, while those with melting points less than 40° C. are greases.
2/ Free fatty acid content.
3/ Moisture and insoluble and unsaponifiable material present.
4/ Fat analysis committee of the American Oil Chemists' Society, established color standards.

American Meat Institute Foundation. Adding Animal Fats to Feed Formulas. Circ. No. 7. April 1953.

R. L. Appling T. H. Osborne

Sales Changes Made At Western-Waxide

SAN FRANCISCO—The Western-Waxide Division, Crown Zellerbach Corp., has announced three management changes in its sales operations.

Robert L. Appling, formerly resident manager of Western-Waxide's plant at St. Louis, has been appointed assistant director of sales at San Leandro, Cal. Thomas H. Osborne, St. Louis sales manager, has been named St. Louis resident manager. Clayton Hayes, sales supervisor of bakery and frozen food products at St. Louis, will succeed Mr. Osborne as sales manager there.

Mr. Appling is a graduate of the University of Kansas and the Harvard School of Business. He has been with Western-Waxide since 1949, and held several positions in production and management before becoming resident manager in St. Louis in 1953. Mr. Osborne is an alumnus of Butler University. He has been with Western-Waxide since 1950, and has over 20 years of experience in the paper industry.

Mr. Hayes, who was just named sales supervisor last January, has been with the organization since 1938.

Bemis Announces Staff Changes in New York

ST. LOUIS—T. T. Hazelwood, manager of the Bemis Bro. Bag Co.'s New York cotton sales department, has retired after 43 years with the company. He will be succeeded by W. S. Martin. Miss Kathryn Meyer, assistant to Mr. Hazelwood, has been appointed cotton goods buyer.

Mr. Hazelwood joined Bemis' Boston office following graduation from Yale in 1914. His work with the company included selling for the Winnipeg plant and the New York sales office. He was appointed sales manager of the Brooklyn plant, and in 1943 became head of the New York cotton goods department.

Mr. Martin joined the company in 1945 after completing four years in the Navy. He attended Brooklyn Technical High School and Parsons Institute. His position within the company has been that of salesman for the New York sugar bag sales department, burlap piece goods department, and the cotton department.

Miss Meyer has been with Bemis for 22 years. She was graduated from the Far Rockaway High School on Long Island and attended the Merchant's and Banker's Secretarial School and Columbia University Extension. She joined Bemis as a secretary and later assistant to Mr. Hazelwood. In the past few years she has performed numerous purchasing functions in addition to secretarial duties.

FIRE DESTROYS ELEVATOR

NEODESHA, KANSAS — A grain elevator fire here recently destroyed 6,000 bu. wheat and the W. S. Smith Seed & Grain Co. Elevator. Wallace Smith, owner and manager, estimated losses at $50,000.

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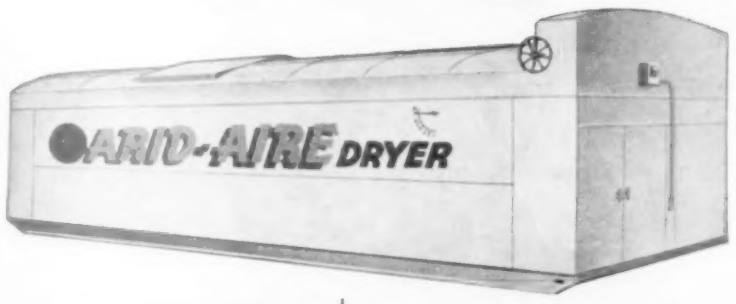

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For less than 2c per bushel, grain is coated with TETRAKOTE'S residual deposit. Germination and milling quality is not affected. By using TETRAKOTE now you may prevent losses due to insect damage that can mount up to $1.00 per bushel or even more.

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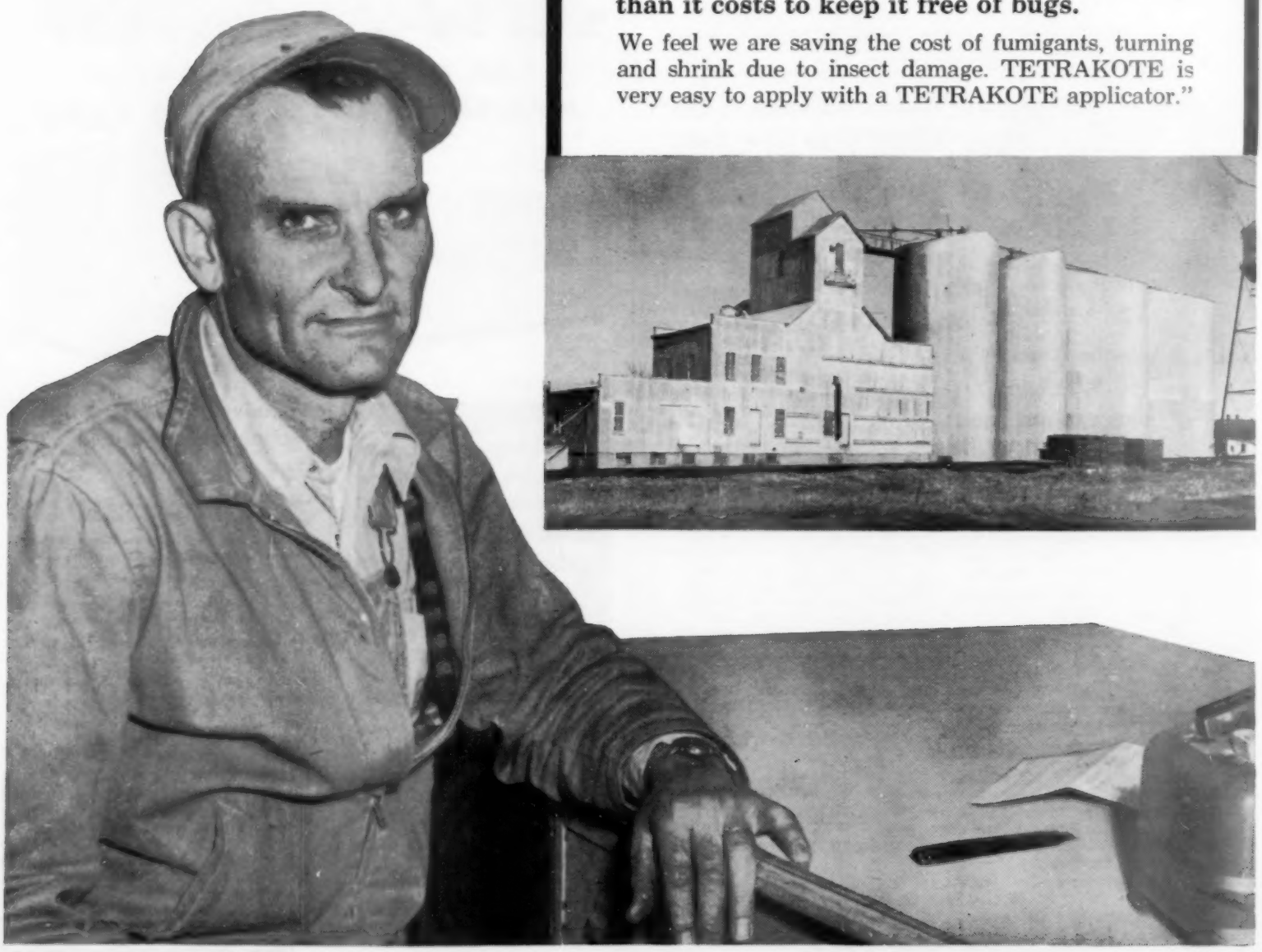
We feel we are saving the cost of fumigants, turning and shrink due to insect damage. TETRAKOTE is very easy to apply with a TETRAKOTE applicator."



See for yourself...the protection you get with TETRAKOTE

Fifty Rice Weevils were placed in each of the four jars of grain shown below. There are two jars of corn, two jars of wheat. *After 3 months, look at the difference!*

No TETRAKOTE here . . . what a mess. Active infestation has reduced much of this wheat to dust.

TETRAKOTED in the normal way. No sign of insect activity. Wheat is just as clean and undamaged as the day we put the weevils in.

Happiest weevils in captivity. Without TETRAKOTE they thrive on this corn diet. Weevils can do this same damage in your bins.

Corn TETRAKOTED for less than 2c a bushel. We added weevils three months ago. There's no damage at all, no insect activity.

FREE! Professional Inspection by Grain Sanitation Specialist

Have your stored grain and premises checked for insect infestation. Following inspection, a complete summary and evaluation report will be submitted to you at no charge. Report covers moisture content, temperature, test weight, insect population, presence of odors. Potential trouble spots in and around your plant are also covered. Corrective recommendations are also included.

FREE Bonus Offer... Send for your 1958-59 Douglas Grainman's Insect Calendar with full color illustrations and information about insects that can and do attack your grains. Now you can identify them quickly . . . know what to do to eliminate them. Just check "Calendar" on the handy coupon.

Costs You Nothing; Douglas Foots The Bill

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620 East 16th Avenue, North Kansas City, Missouri

☐ I want professional assistance with grain sanitation. Without obligating me, have your Specialist contact me.

☐ I would like to have the inspection made within 30 days _____ 60 days _____ (check one)

I am storing _____ bu. of _____ (kind of grain)

☐ Please Send Copy of 1958-59 Grainman's Insect Calendar

COMPANY NAME _____

ADDRESS _____

CITY _____ STATE _____

TITLE _____ SIGNED _____

The Feed Industry Looks at Regulations

By Dr. J. L. Jensen
Nutrena Mills, Inc.

"One of the biggest problems that feed manufacturers face is the multitude of interpretations various states give to medicated feed labels."

As a representative of the Northwest Feed Manufacturers Assn., I would like to make a few comments about the following problems:

1. Diluents for micro-ingredients.
2. Custom-formula feeds.
3. State Feed Control Official Approval of Type 1, Type 2 and hormone labels for medicated feeds.

In discussing diluents for micro-ingredients I would like to review briefly a talk that Earl Hanson, manager of Archer-Daniels-Midland Co.'s feed service department, presented at the recent open forum on control problems at the American Feed Manufacturers Assn. convention in Chicago.

Mr. Hanson asked the question: "Should diluents for micro-ingredients be declared on feed labels?" There are about 60 separate products being used as diluents for the micro-ingredients such as vitamins, coccidiostats, antibiotics, etc.

If the feed control officials should decide that each diluent must be listed as an ingredient on the feed label, the feed manufacturers may have to declare as many as 10 different diluents on some feed labels and the label probably would sound like this:

X vitamin on a carrier of A meal, Y vitamin on a carrier of C meal, etc.

The argument has been advanced that if certain high fiber ingredients were used as diluents, they would raise the fiber content of the feed. However, if we assume that 0.25% of a micro-ingredient on a diluent containing 30% fiber were added to a feed, this will add only 0.075% fiber. The normal variation of ingredients will make a greater fiber difference than this.

A proposal by feed control officials was made in Chicago that seems like a reasonable solution to this problem. It was suggested that any diluent which does not exceed 2 lb. per ton in the feed would not have to be listed as an ingredient. We assume this level applies to a complete feed and in a feed concentrate we would be able to have a higher level of diluent without declaring it as an ingredient. If we could have 2 lb. of a diluent per ton of feed without declaring the diluent as a feed ingredient, we would only have to declare the diluent for hygromycin at the present time.

We hope the feed control officials will adopt the 2 lb. per ton level recommendation and make it official.

EDITOR'S NOTE: Dr. J. L. Jensen, quality control director for Nutrena Mills, Inc., Minneapolis, discussed certain feed control problems in a talk at a recent meeting in Minneapolis of the North Central States Association of Feed and Fertilizer Officials. The accompanying article is from Dr. Jensen's talk. He gave principal attention to problems in connection with different interpretations which various states give to medicated feed labels, and he suggested possible procedures to bring about uniform labeling. Dr. Jensen also discussed diluents for micro-ingredients and custom-formula feeds.

Custom-Formula Feeds

At the present time many feed manufacturers are confused as to what constitutes a "custom-formula feed." Some states believe that a custom-formula is a feed prepared to a customer's formula and some of the grain must be supplied by the customer. Other states define a custom-formula as a feed in which all ingredients can be supplied by the feed manufacturer. Still other states refuse to recognize the existence of a custom-formula feed and flatly state that all feeds must be registered.

It would be convenient if we could ignore the requests for "custom-formula" feeds. However, the farmer today is keeping up with new advances in nutrition and has his own idea of what he wants to feed his livestock. Because the feed manufacturer cannot make feeds with every new chemical that is marketed, we will probably have to continue to make custom-formula feeds. However, we hope that the North Central States Association of Feed and Fertilizer Officials will be able in the near future to provide us with its definition of a custom-formula. It would be a great help if you would put in writing that you accept the definition of a custom-formula feed which appears in the Uniform State Feed Bill, 1957 edition. This definition has the approval of both the Association of American Feed Control Officials and the American Feed Manufacturers Assn. This definition is brief, and I will refresh your memory of its provision:

"A customer-formula feed shall be labeled by invoice. The invoice, which is to accompany delivery and be supplied to the purchaser at the time

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MUNCY, PENNA.

of delivery, shall bear the following information:

"1. Name and address of the mixer.

"2. Name and address of the purchaser.

"3. Date of sale.

"4. Brand name and number of pounds of each registered commercial feed used in the mixture and the name and number of pounds of each other feed ingredient added.

"If a commercial feed or a customer-formula feed contains a nonnutritive substance which is intended for use in the diagnosis, cure, mitigation, treatment or prevention of disease or which is intended to affect the structure or any function of the animal body, the..... may require the label to show the amount present, directions for use, and/or warnings against misuse of the feed."

The section on inspection fees states: "However, customer-formula feeds are hereby exempted if the inspection fee is paid on the commercial feeds which they contain."

We trust that some or all of the states represented by the North Central State Assn. will put in writing that they will accept the provision of the Uniform State Feed Bill as it applies to custom-formula feeds.

Probably the biggest problem that Northwest Feed Manufacturers face is the multitude of interpretations various states give to medicated (Type 1, Type 2 and hormone) feed labels.

When a new coccidiostat, antibiotic or other drug has been given FDA approval, the feed manufacturer must submit his formula and proposed tag to the Food and Drug Administration before he can sell the feed that contains the new drug.

The drug manufacturer supplies us with a proposed label which apparently has the approval of the Food and Drug Administration, and in most cases the Food and Drug Administration approves without alteration the labels which we submit. Before final clearance is given to sell these feeds, three copies of the final printed label must be submitted to Food and Drug Administration.

After we have received final clearance, these FDA approved tags are sent to the states in which we want to sell our feeds. The feed manufacturer reasons as follows:

"We have Food and Drug approval for this feed. We certainly will obtain the approval of each feed control official without comment." But our pleasant thoughts many times turn out to be wishful thinking because some state feed control officials will say, "We can not approve your label unless you make the following changes, etc." At this point the feed manufacturer starts to become frustrated because the Food and Drug Administration told him to print the label according to its format; yet the state feed control official says, "Unless you conform to my label suggestions for this feed, you can not sell it in this state."

We are in a real dilemma. We want to sell this feed in each state, yet we are violating the Food and Drug Administration approved label if we make changes in the format. So we change the label to conform to the state feed control official's suggestions and at the same time hope that the Food and Drug Administration won't prosecute us for changing the label it approved.

How can we solve the problem of obtaining the approval of all state feed control officials on label formats that have been approved by the Food and Drug Administration?

If there are state laws which must be adhered to, we know that the state feed control official will have to make certain that the FDA approved tag format agrees with existing laws.

However, it is believed most new drugs are not subject to laws which are on the books of the individual states. Thus, in these cases the Northwest Feed Manufacturers would like to suggest the following procedure:

That the Association of American

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Melrose Bldg. • Houston, Texas

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Thousands of tiny interlocking grooves are pressed into the tough kraft outer-wall of the new Cromwell STAK-GRIP bag . . . by an embossing process originated by Cromwell. Result: *built-in* two-way slip-resistance with no reduction in strength!

In over three years of actual use, the Cromwell STAK-GRIP bag has proved these outstanding advantages:

1. **cuts breakage losses** due to slippage.
2. **increases safety** because bags stack solidly.
3. **helps sales** because both dealers and farmers like the flexible, easy-to-handle surface and the extra-brilliant printing.

for the latest and best in feed bags

brightest, strongest printing you've ever seen on a multi-wall bag!

Printing before embossing gives a 3-dimensional effect to the printing, adds amazing brilliance and intensity, and puts a real merchandising wallop behind your brand.

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Only Terramy

is effective against all these 31 import livestock and poultry diseases

No other drug offers a wider range of activity

Not even a combination of the 5 other drugs listed in the ch can equal the disease-fighting protection of Terramycin alo

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Terramycin's broad range of activity makes it the drug of choice for your feeds

When animals or poultry become sick, you want the most effective drug you can find to fight the infection.

As this chart shows, Terramycin is by far the most active of these 6 drugs against these 31 important diseases.

Some of these diseases must be treated by special dosage forms, such as injection which gets a high level of Terramycin into the blood stream fast. Others can be treated by tablets or in the water if animals or birds are off feed.

In many cases, the most efficient and economical treatment is through the feed.

That's why high level feeds with Terramycin have become so important in raising livestock and poultry.

Range of activity is important

The average grower is not always able to predict the exact disease conditions which might appear. When your feed contains Terramycin, his chances of achieving good results are much greater than would be possible with a limited-range antibiotic.

Proper levels are important

To be effective any drug must be present in adequate amounts.

Your high level feed, made with Terramycin at recommended levels, will effectively treat the conditions indicated.

Some feed manufacturers are now experimenting with much higher levels to increase the effectiveness of their feeds against even more diseases. Your Pfizer representative will be glad to give you details on this.

Don't settle for less

Substitution of drugs with less activity, to achieve the possible savings of a few cents a ton, risks the effectiveness of your feed and possible loss of customers' livestock or poultry.

Today, more farmers and feeders name Terramycin as their first choice over all other antibiotics. This choice is based on the excellent results they have obtained with feeds containing this proven antibiotic.

EFFECTIVENESS OF VARIOUS DRUGS
AGAINST LIVESTOCK AND POULTRY DISEASES
(In feed unless otherwise indicated) Information based on available literature

DISEASE	ORGANISM	TERRAMYCIN	FURAZOLIDONE	BACITRACIN	PENICILLIN	SULFONAMIDES	STREPTOMYCIN
ANAPLASMOSIS	PROTOZOA	●					
HEXAMITIASIS			■				
FOOT ROT	ACTINOMYCES	★			■	●	●
ACTINOMYCOSIS (LUMPY JAW)		●			●	●	
ERYSIPELAS	GRAM POS. BACILLI	●			●		
ENTEROTOXEMIA (OVEREATING)		■					
ANTHRAX		●			●		●
BLACK LEG		●			●	●	●
MALIGNANT EDEMA		●			●	●	●
MASTITIS	GRAM POS. COCCI	■			●	●	●
PNEUMONIA		★			●	●	●
STRANGLES		●			●	●	●
LYMPHADENITIS (JOWL ABSCESS)		■					
CHRONIC RESPIRATORY DISEASE	PPLO GROUP	★	■	■	■	■	■
INFECTIOUS SINUSITIS		★	■	■	■	■	■
BLOODY SCOURS	GRAM NEGATIVE BACILLI	■	■				■
BABY PIG SCOURS		■	■				
WHITE SCOURS (CALVES)		■				■	
SALMONELLOSIS			■				
PINK EYE		■				●	
MASTITIS		■					●
LEPTOSPIROSIS	SPIROCHAETES	★					●
SPIROCHETOSIS		●			●		
BLUECOMB	NON-SPECIFIC OR UNKNOWN ETIOLOGY	■	■				
SYNOVITIS		★					
ATROPHIC RHINITIS							
HEMORRHAGIC SEPTICEMIA (SHIPPING FEVER)		★			●	●	●
ENTERITIS		■	■	■			
BLOAT		■			■		
PSITTACOSIS (ORNITHOSIS)	LARGE VIRUS	★					●
HEARTWATER DISEASE	RICKETTSIA	●					

LEGEND
■ EXCELLENT ACTIVITY
■ MODERATE ACTIVITY
□ SLIGHT ACTIVITY
□ NO ACTIVITY OR NOT USED

IN FEED OR WATER UNLESS INDICATED
★ IN FEED OR WATER and or INJECTED
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5. Hexamitiasis
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That's why, when your poultry feed contains Terramycin, you can be sure your chances of delivering good results are much greater . . . your assurance of complete customer satisfaction much better . . . than would be possible with any limited-range antibiotic.

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MYCIN . . . CARBOMYCIN . . . TETRACYCLINE . . .
'MYXIN . . . DIHYDROSTREPTOMYCIN . . . VIOMYCIN

*TRADE MARK

Feed Control Officials appoint a person or group of persons who they believe is qualified to prepare the definitive label for a feed with a new drug. When this person puts his stamp of approval on a new drug label, each state feed control official will give his okay for the registration of this label because he agreed that the appointed person or group of persons would have the final authority to write labels for (Type 1, Type 2 and hormone) medicated feeds.

1. Possibly the Food and Drug Administration should have the final authority to write labels.

2. Perhaps the Food and Drug Administration, in conjunction with the medicated feed labeling committee of the Association of American Feed Control Officials, should constitute the group of persons that would put its stamp of approval on a new drug label.

3. A possible alternative to setting up a person or group of persons to decide on the definitive label format is for someone to prepare a number of possible label formats for a new drug and submit them to each state feed control official for his vote. The label which receives the most votes would be adopted as the label that would receive the approval of every state feed control official.

However, these are only suggestions and the members of the Association of American Feed Control Officials will have to decide how a definitive label will be established.

The changes in labeling of feeds required by many states directly increase the cost of feed to the farmer. Not only is valuable time consumed in making changes to satisfy each state, but printed tags must be discarded. We have some feeds which require two and three different labels for the same feed in order to satisfy all state registration requirements.

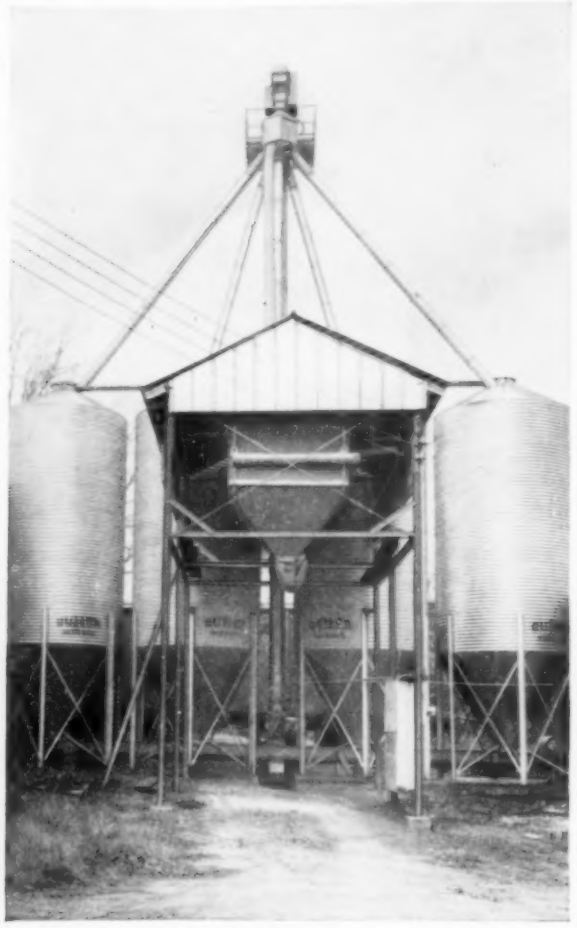
In many feed companies the person handling the registration of feeds is also concerned with the quality control of feeds. We can assure that if the feed control officials unanimously adopt one label for each new drug, we will be able to devote more time to the quality control of feeds that we sell to the farmer.

We realize there are some state laws concerning feed registration that we will have to satisfy as it may be a long time before we have a uniform feed law. However, as new chemicals appear on the market, we trust someone or some group will be able to tell us there is only one way to write the medicated (Type 1, Type 2 or hormone) labels.

This person or committee which prepares the label must have the confidence and respect of all state feed control officials so that when a decision is made on the label format, each state feed control official will give his stamp of approval to this label.

We will probably never realize a solution to all of our problems. However, we sincerely appreciate your expressed desire to make registration of feeds easier to accomplish.

Feed can be unloaded from track-side hopper car into any of four tanks or directly into hopper scale for fast delivery to trucks.



Bulk-O-Matic feed station in Georgia features four 25-ton Butler tanks and 3-ton hopper scale for loading into trucks.

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do more than earn bulk discounts

Switching from bagged to bulk feed enabled T. W. Hollis, Jr., feed dealer in Buena Vista, Georgia, to take advantage of bulk discounts and earn an extra $500 a week.

But, this extra income is just one of many advantages Mr. Hollis realizes by handling feed the modern Butler Bulk-O-Matic way.

For example, with only one man needed to handle the 100-ton-per-week flow of pellets and crumbles, Mr. Hollis also saves $75 a week in labor.

Then too, losses from spillage, waste, rodent damage and spoilage are greatly reduced. And, with fresh feed available at all times, Mr. Hollis gives faster service and builds customer good will.

Butler galvanized steel tanks keep out weather and rodents; require little maintenance and will not absorb moisture from high-fat concentrates. They provide quality storage at lowest cost.

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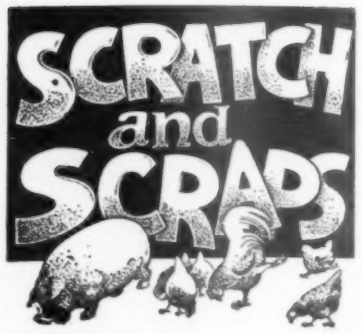

"For a modern house," commented the prospective buyer, "these walls don't seem very sturdy."

"Well, maybe," the seller agreed grudgingly, "but they're not painted yet."

◆ ◆ ◆

Somebody once remarked to Will Rogers that Webster spoke perfect English.

"Shucks," snorted Rogers in his own inimitable way, "if I wrote my own dictionary, so could I."

◆ ◆ ◆

The football coach of Okeegum State was having a session with his highly lethargic team. They had lost all games thus far, and were suffering from a serious case of defeatism.

During the lecture, the coach kept emphasizing the importance of line play. "Most games," he repeated, "are lost at the tackles. Either just inside or outside of the tackles."

Looking up the coach was exasperated to note that Johnson—one of the tackles at whom he was pointing his talk—was dozing in the back row. "Johnson!" he roared, "where are most football games lost?"

Rousing himself with an effort, Johnson answered: "Right here at Okeegum State, Coach."

◆ ◆ ◆

The old grandfather clock was beginning to show its age, and Farmer Wilkins took it apart one day and tried to fix it. After a while, he was able to get it back together again, and it seemed to be as good as new. But in the early hours of the morning the clock went amok, striking 136 times before it finally stopped. Mrs. Wilkins woke with a start.

"Horace," she shouted, "you'd better get up fast. It's later than I ever knowed it to be before!"

◆ ◆ ◆

"What is the difference between results and consequences?" a teacher asked her class.

Little Billie answered: "Results are what you expect. Consequences are what you get."

- Appetite stimulating aroma and taste
- Saves up to $4 a ton in dairy feeds
- Stabilizes fats—guards vital nutrients
- Powerful antioxidant action—prevents feed off-odors

Write for "taste-test" sample

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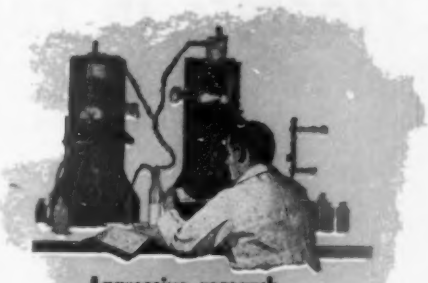
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*The standard for determining the dynamic value of feed phosphates is beta-tricalcium phosphate which is arbitrarily assigned a value of 100.

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Progress in Feeding Broilers in the U.S.

A concise summary of broiler feeding advances and the basic nutrition principles applied in feeding for economical broiler meat production

By Dr. J. L. Krider and Dr. W. W. Cravens
Central Soya Co. and McMillen Feed Mills

EDITOR'S NOTE: Many feed men will be interested in the accompanying summary of progress which has been made in feeding broilers in the U.S. This paper was prepared for presentation at the recent Italian Poultry Congress in Varese, Italy. But, in summarizing up-to-date information on broiler feeding results and broiler feed formulation, it provides a quick picture of broiler nutrition and feeding progress. The paper was presented at the Italian congress by Dr. Krider, who is vice president of Central Soya Co., Inc., Ft. Wayne, Ind. The co-author, Dr. Cravens, is director of feed research and nutrition for McMillen Feed Mills (division of Central Soya), Decatur, Ind.

♥ ♥

The purpose of this paper is to present concisely the progress made in feeding broilers for economical meat production in the U.S. The four topics to be considered briefly are:

1. Growth of the U.S. broiler industry.
2. Per capita consumption of chicken in the U.S.
3. Progress in feeding for more efficient broiler meat production.
4. The nutrition of commercially-fed broilers in the U.S.

GROWTH OF THE BROILER INDUSTRY IN THE U.S.: The commercial broiler industry was very small in the U.S. 25 years ago. As early as 1934, only 34 million U.S. commercial broilers were produced. Yet the popular commercial broiler has almost replaced the farm chicken (fryer) of yesteryear. Today fried or broiled chicken in the U.S. is a year-round meat, not just a seasonal

Dr. J. L. Krider

treat. Today, commercially produced broilers supply more than 4¾ billion pounds of tasty, nutritious chicken a year.

Some 43 million U.S. commercial broilers were produced in 1935 and 1,452 million in 1957, for a 3,377% increase. Estimates indicate that 1958 production will exceed 1.5 billion broilers. Meanwhile, numbers of farm chickens raised have declined from a high of 1,001 million in 1943

(Turn to PROGRESS, page 68)

Dr. W. W. Cravens

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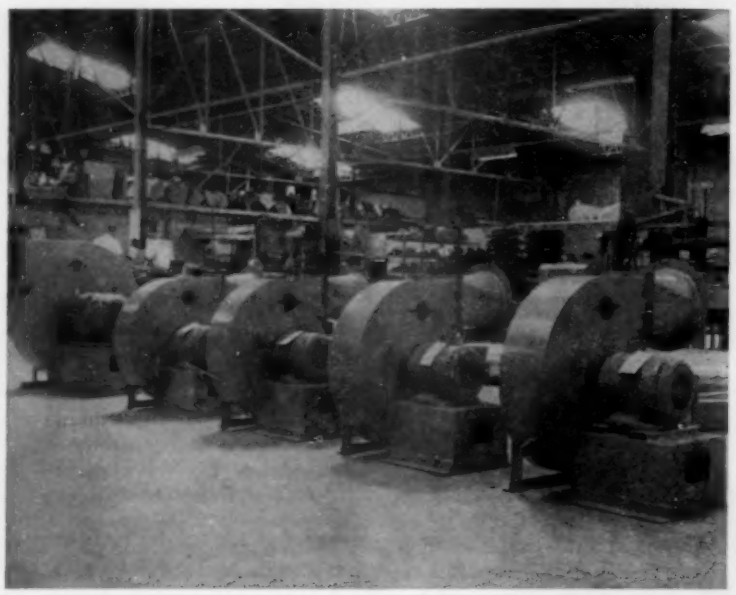

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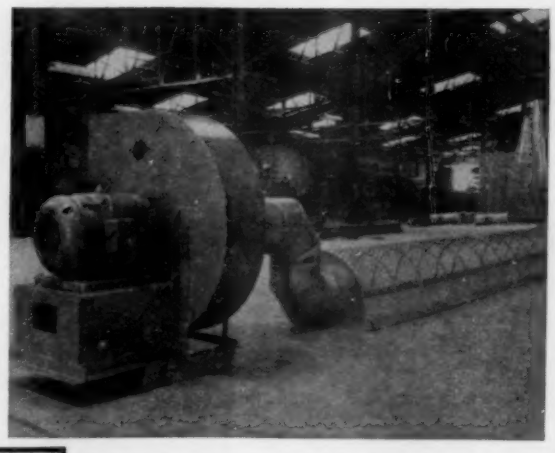

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Farm and Feed Salt NEWS

FROM INTERNATIONAL SALT COMPANY, INC.

A summer merchandising message

Display Sterling Salt for extra profit!

NEW, ANIMATED COUNTER PIECE—adds impact to any display. Cow's head moves, and tongue licks away on Sterling Salt. Ask your Sterling representative for a scheduled showing in your store.

50-lb. STERLING SALT BLOCKS—excellent for feeding salt free-choice on pasture. Available plain, iodized, sulfurized, or with trace minerals (Blusalt). Your customers will look for the block with the Big I on top.

STERLING BLUSALT—trace-mineral salt for free-choice feeding. Contains the now known correct amounts of manganese, iron, sulfate sulfur, copper, cobalt, iodine and zinc.

STERLING GREEN'SALT—trace-mineral salt plus 10% phenothiazine for effective low-level control of certain internal parasites. 25-lb. bags have a handle for easy carrying—a merchandising plus!

4-lb. STERLING SALT-LIKS—designed specially for feeding salt free choice in stanchions. Liks are grooved, to fit firmly into rugged Sterling Lik Holders, packed 12 to a case.

Also available: pure, white Sterling Granulated Salt—the choice of livestock producers for free-choice feeding or feed mixing.

to increase sales of free-choice salt and to help make up for the summer slump in dairy feed sales!

Take full advantage of the seasonal demand for free-choice salt. Display and sell the popular Sterling Farm Salt products. Good sellers the year 'round, these products are in greatest demand during the pasture season, when animals eat less prepared feeds containing needed salt. Sterling Farm Salt products are now selling better than ever on display, because of these important extras . . .

New, brightly colored Sterling Salt bags are the best-looking salt bags on the market. In any well-planned display, they practically sell themselves.

New animated counter piece is one of many eye-catching sales aids for Sterling Salt. You can also get ad mats . . . a colorful "Authorized Dealer" sign . . . and other effective point-of-sale items.

New and powerful advertising in farm magazines and papers is making the Sterling name known and preferred in your area. More livestock producers are asking for Sterling Farm Salt products.

Now's the time to put the *complete line* of Sterling Salt products to work for you! Just ask your Sterling Representative, call our nearest sales office, or write direct to International Salt Company, Inc., Scranton 2, Pa.

New block slings —another first in Sterling service to the feed and farm trade

Now—the job of handling block salt on the farm and at the mill is easier than ever! Just attach these new block slings to the Sterling Salt blocks. You can carry one in each hand!

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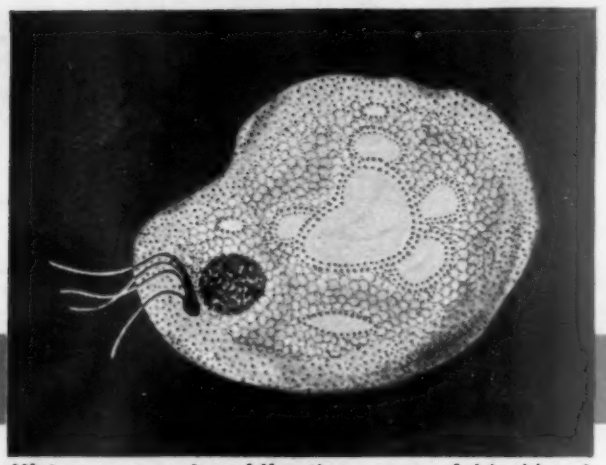


Histomonas meleagridis, the cause of blackhead infection in turkeys.

Add HepZide® to your Starter, Grower, and Finishing Rations

(NITHIAZIDE)

Since its introduction in 1957, as a soluble powder for drinking water medication, HepZide has proved a highly effective compound for the **control** of both blackhead and hexamitiasis in turkey flocks. Now, after months of testing under rigid field conditions, a **new** pre-mix—HepZide Mixture "20"%—is available. Provide your growers with continuous, high-potency protection against costly outbreaks of these important protozoan diseases.

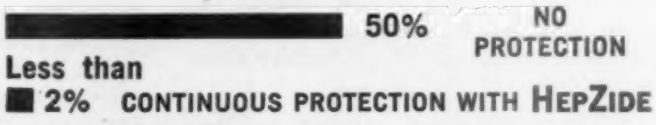
HepZide Can Be Fed—With Complete Safety—To Turkeys of All Ages—HepZide, a patented product of Merck, has demonstrated a remarkable degree of potency against the parasites responsible for blackhead and hexamitiasis. But, in marked contrast to other anti-blackhead agents, HepZide is safer in practical use—will not interfere with **growth, sexual maturity, subsequent egg production, fertility or hatchability.**

Feed Consumption Remains At High Levels—Reduced intake of medicated feeds sometimes presents a serious problem to growers in trying to finish birds with efficient feed conversion ratios. Not so with HepZide. Rations containing this compound at recommended levels are palatable, readily consumed by young, growing or mature birds. And sustained feed consumption helps poults make consistent gains in weight, means maximum protection against blackhead and hexamitiasis—from brooding to marketing.

CHART A

HepZide checks blackhead, hexamitiasis losses

Total Flock Mortality



These Beltsville White turkey broilers were sold at 16 weeks of age with an average weight of 8.07 pounds and a feed conversion of 3.15.

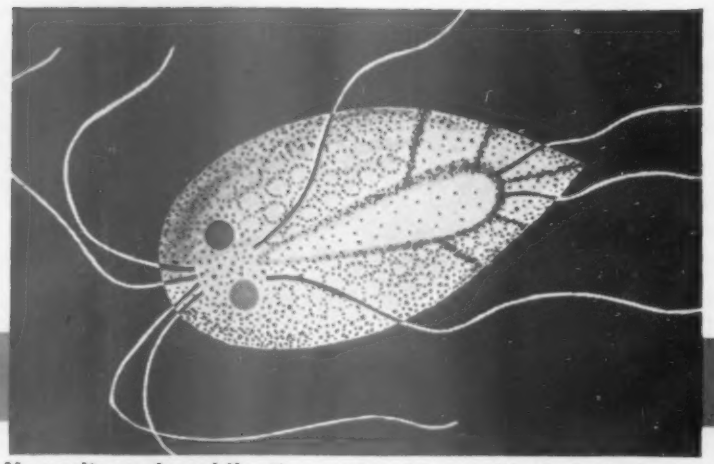
HepZide Checks Blackhead Losses

A wide range of effectiveness has been demonstrated by HepZide in a series of trials conducted under practical field conditions. On one farm (Chart "A"), one flock of Beltsville Whites had suffered 50 per cent mortality due to blackhead and hexamitiasis. A second flock of 9,000 Whites started on the same premises, with little or no clean up and disinfecting of quarters, was placed on rations containing prophylactic levels of HepZide from the time they were one day-old to 16 weeks of age. **The less than two per cent general mortality in this second flock** attests to the high degree of protection against these two protozoan diseases.

NCY PROTECTION AGAINST

HEXAMITIASIS

IDE EFFECTS!



Hexamita meleagridis, the cause of hexamitiasis in turkeys.

CHART B*

HEPZIDE HELPS GROWER MARKET HEAVIER BIRDS ON LESS FEED

2,325 Broad-Breasted Bronze Turkeys

Birds Started	2,325
Birds Finished	2,225
Mortality (all causes)	2%
Age When Sold	24 weeks
Weight When Sold (toms)	26.3 lb.
Weight When Sold (hens)	16.5 lb.
Feed Conversion	3.79

According to the pathologist supervising this trial the "flock had good weight, feed conversion and livability. There was no evidence of blackhead at any time."

A continuous preventive program pays off—Blackhead infections, no matter how mild, rarely confer immunity against subsequent attacks. And even light infections, or subclinical infections with no outward signs of disease, may result in mortality or serious setbacks in weight gains. In addition, blackhead and hexamitiasis strike birds at different ages.

The most practical and economical approach to the problem of blackhead (and hexamitiasis) is the continuous use of feeds medicated with HEPZIDE. Prophylactic levels of this compound will check tissue damage and mortality as a result of these diseases, will help your growers market heavier birds at an earlier age.

*The results shown in Chart "B" are representative of those reported from flocks under varying farm conditions, fed rations containing low levels of HEPZIDE from the time they were placed on litter.

This is a photomicrograph of an embryonated cecal worm egg (Heterakis gallinae).

Cecal worm eggs, carrying blackhead organisms, can survive in the soil **and transmit the disease for periods up to three years!** On overcrowded, or contaminated ranges, continuous protection against blackhead losses may be obtained through the continuous use of feeds medicated with prophylactic levels of HEPZIDE. Merck & Co., Inc., Chemical Division, Rahway, New Jersey.

Coccidiosis symptoms are sometimes difficult to detect—and, one sick poult can rapidly infect an entire flock.

S.Q.® (sulfaquinoxaline) added to your rations at low levels, will protect poults against profit-draining coccidiosis "breaks."

Are your customers interested in dual-action antibiotic fortification of their turkey rations? Recommend low-cost PRO-STREP® the effective combination of procaine penicillin and streptomycin sulfate in a ratio of 1:3.

HepZide

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River Rest Whites are hatched by the turkey industry's only national franchise system producing first generation poults exclusively. Each poult bearing the River Rest trade name is only one generation away from the latest in turkey breeding at River Rest Farms.

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Importance of Poultry Serviceman Stressed at Two-Day Purdue Clinic

By DAVID D. JACKSON
Purdue University

LAFAYETTE, IND.—A full range of poultry topics, including the important part servicemen can take in helping flockowners with management decisions, were covered by upwards of two dozen speakers at the recent Purdue University Poultry Servicemen's Clinic here. Approximately 200 servicemen and other poultry industry representatives attended the two-day event.

In feed discussions, entitled "Facts and Fancies on the Feed Front," Richard Karrasch, research director for Red Comb Pioneer Mills, Chicago, emphasized the many factors that go into good feed. New ingredients, changing processes of old ones, countless feed additives and their effect on inter-relationships of essential factors, require constant experimentation to get the best return per dollar spent for feed, he told the group.

More Fat Now

Roy E. Roberts, in charge of poultry nutrition extension work at Purdue, pointed out that to get maximum returns from feeding, homegrown grains must be supplemented with the proper proteins and vitamins. The industry has come a long way in increasing energy in the rations by first adding more corn, replacing the bran and middlings, and now by adding animal fat. By just adding the corn to replace the bran and middlings the fat in the total rations is increased by 5%, he said.

Two speakers stressed the opportunities for and qualifications of good servicemen. Jerome S. Seger, owner-manager of Dubois (Ind.) Elevator Co., expressed a preference for a middle-aged, responsible person with a good personality, and possessing a farm background. Further, this ideal serviceman should like working with poultry and be proficient in all phases, he said. Willingness to work odd hours also is important. A high school education is necessary and college is desirable.

Robert J. McVicker, poultry specialist with the educational service division of Allied Mills, Inc., Libertyville, Ill., touched on the value of servicemen in his talk on stresses of poultry. Knowing the various factors involved in breeding, feeding, management, housing and disease control can be helpful in detecting and minimizing stresses during the brooding period of chicks and fryers, he said. A good serviceman should be able to offer assistance to the flockowner regarding decisions, he emphasized. Management is decision-making, and stresses are the result of the decisions made.

Geneticists and nutritionists have provided the industry with a broiler that grows rapidly, reaching market grade while still young and tender, said John V. Spencer of the Washington State College poultry science department, in his discussion on quality factors in marketing live poultry. The tender condition of the birds means that the tissue bruises extremely easily, and for this reason care in handling can do the most in reducing such bruising.

He reported that about 10% of the broilers processed are down-graded for one reason or another, and about three quarters of these are the result of bruising. The price experts say that down-graded birds are reduced in value about 10¢ lb., which, in Indiana alone last year, would have resulted in a loss of $1,400,000 from bruising only. Proper handling, especially from the broiler house to the processing line, could cut this loss by an estimated one half, he said.

Progress in Poultry

In a veterinary section, "Sanitation, the Vital Link," was discussed by Dr. Hilmer L. Jones, Chas. Pfizer & Co., Inc., Terre Haute, Ind. Poultry sanitation may be defined as the means and measures directed toward establishing and maintaining an environment in which it is safe for birds to live, he said. Thus, sanitation can be considered as an effort to prevent the disease and parasitic infections which would provide an otherwise unhealthy environment. The poultry industry has stepped forward in the last 15 years to assume its rightful place in providing food for the people. The full production potential of our birds can never be realized unless we keep them alive and healthy, Dr. Jones told the group.

Respiratory diseases have rapidly become the number one problem to the poultryman, particularly in the

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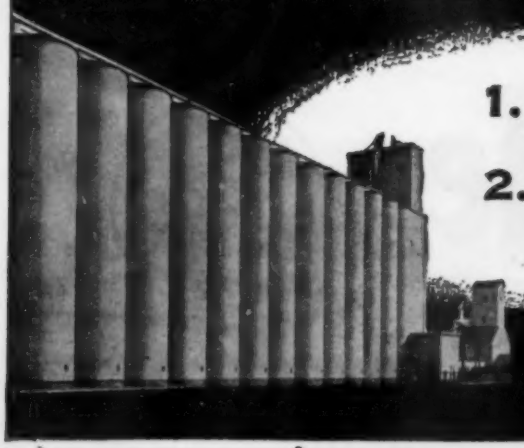

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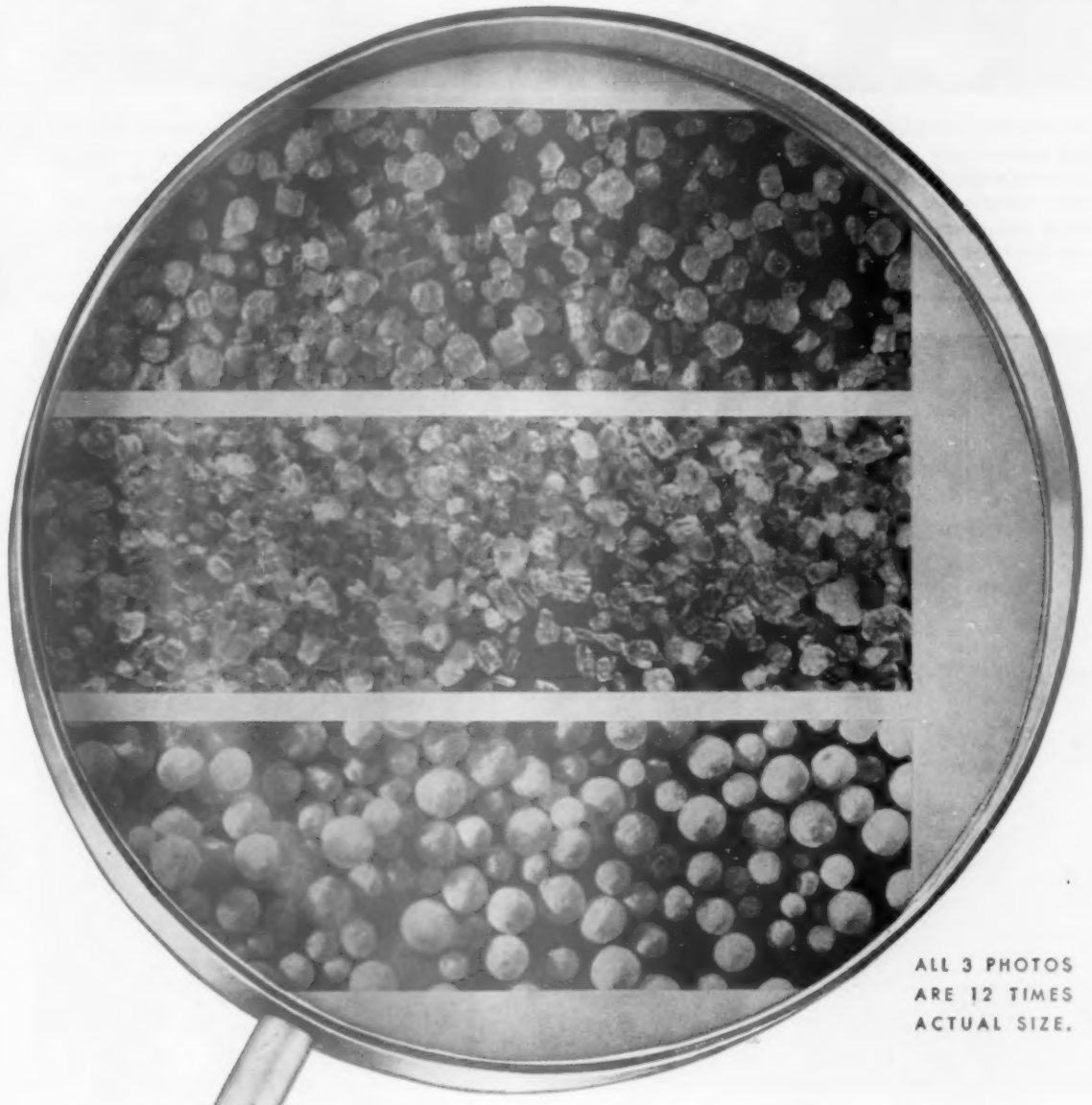

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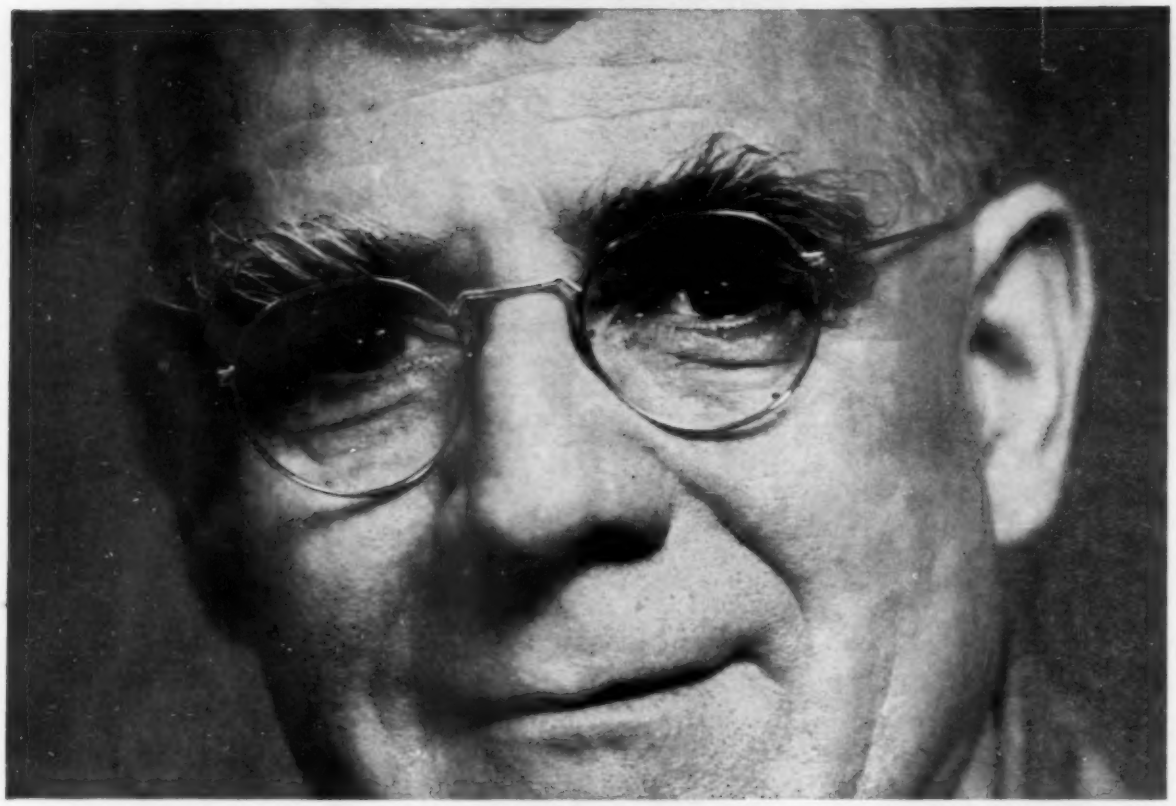
FIRST PURDUE POULTRY CLINIC—Among the speakers and hosts at the recent Purdue University Poultry Servicemen's Clinic were, left to right, Robert L. Hogue, executive secretary of the Indiana State Poultry Assn.; Vernon E. Cummings, Quaker Oats Co., Libertyville, Ill.; Richard Karrasch, research director, Red Comb Pioneer Mills, Chicago; Roy E. Roberts, Purdue extension poultryman; John S. Frederich, general manager, Creighton Bros., Warsaw, Ind.; J. E. Marr, poultry research division, Ralston Purina Co., St. Louis, Mo.; Joe Taggart, Chick Master Incubator Co., Cleveland, and David D. Jackson, Purdue extension poultryman and program chairman.



broiler industry, according to Dr. George J. Christie, Eastern States Farmers Exchange, West Springfield, Mass., who discussed "What We Know and Don't Know About Respiratory Diseases." Dr. Christie, formerly with the Purdue Diagnostic Laboratory and the Indiana State Livestock Sanitary Board, told the group that Newcastle disease, infectious bronchitis and chronic respiratory disease are of the greatest economic importance in the Midwest.

"What the Practicing Veterinarian Can Do For the Commercial Poultryman" was discussed by Dr. J. H. Gregg, Nappanee, Ind. He outlined important part the private veterinarian trained in poultry diseases can render in the field. Often the veterinarian can be of great assistance in the triangle involving the hatchery, feed company and the poultryman, he noted. This is especially true when certain disease problems exist.

Dr. J. O. Alberts of the College of Veterinary Medicine, University of Illinois, spoke on "Control of Blackhead and Coccidiosis in Chickens and Turkeys." It was pointed out that a range rotation system is still an excellent method of control for diseases of this type, and more confinement rearing and smaller acreages relative to the number of birds raised make the problem greater. Certain drugs are effective but must be handled properly to avoid toxicity at high levels and under certain conditions, said Dr. Alberts.

Newcastle Research

A summary of "What's New in Poultry Diseases" was covered by Dr. Wilson Henderson, Purdue Department of Veterinary Science. Research work on the cause of ruptured aortas in turkeys is being continued. Two strains of Newcastle disease virus were for the first time successfully propagated on swine embryo lymph node cells in tissue culture. Dr. Henderson also pointed out that one commercial vaccine virus was found to stimulate no antibodies against the test virus. This vaccine was found to contain the live virus of bronchitis, but it stimulated antibodies only against itself. Dr. Henderson reported that three new species of Salmonella were isolated for the first time from poultry in Indiana.

A "Stump the Experts" panel concluded the first day's program. The fieldmen's panel consisted of R. Wayne Detwiler, Steckley's Mill &

(Turn to POULTRY, page 67)

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By Arthur H. Kantner
Federal Reserve Bank of Atlanta

EDITOR'S NOTE: In today's changing agriculture, there will be an increasing need for farm credit, and a prime task for the feed industry will be credit administration—advancing, controlling and collecting of funds. In the accompanying article, Arthur H. Kantner, agricultural economist with the Federal Reserve Bank of Atlanta, outlines some credit principles for feed men. This article is from a talk by Mr. Kantner at the Georgia Feed Assn. convention.

That feed men will supply much credit to farmers is virtually assured by present trends in agriculture. First, we note vast improvements in the technology of meat production, processing, and marketing. Feed efficiency, assembly line processing, innovations in cooking and packing, and in merchandising—these create needs for a steady flow of quality raw materials into plants. To get it, a new order of financing and an invigorated use of the credit tool may become much more prevalent.

Second, we note that feed costs have a larger role on many farms feed men serve. With livestock and poultry production up in recent years, about 21¢ of farmers' current expense dollar goes for feed in the Southeast; in 1949 feed took 16¢ of it. This is a straw in the wind pointing up the cost structure now being erected in agriculture.

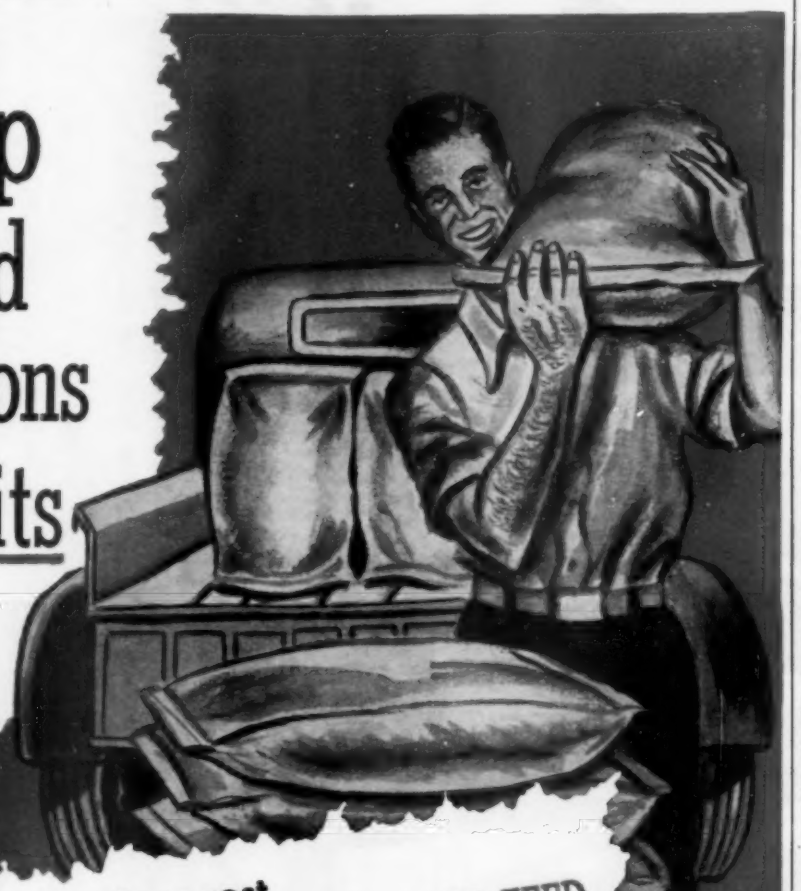
Such new dimensions in the farm business suggest that farmers are pressed to acquire more and more working capital. The question is, Where will they get it? Some farmers, of course, obtain working capital within their own businesses; they set up reserves for depreciation or they commit more of their gross receipts for current farm expenses. Some adjust their spending for farm and home items; they maintain their outlays for production but forego new television sets, radios, stoves, automobiles, and the like. Many farmers are asking for more operating funds from off-farm sources—from their suppliers—from merchants. Broiler growers successfully adopted that technique; many growers and potential growers with surplus labor but little or no funds obtain working capital from feed firms under contract; they thereby raise their labor productivity, which is all to the good.

Feed Industry Role

I think Georgia farmers, in their search for working capital, will find much of it in the form of credit. For this reason alone a prime task for the feed industry will be "credit administration"—that is, the advancing, controlling and collecting of funds. In doing this job feed men may extend credit from their own reserves or surpluses, or may borrow against their assets and in turn lend the proceeds. In either case, they interpose their equity in agriculture's behalf. That can be a sound and constructive act for all of us. Through the credit service of your feed men, for example, farmers may raise their efficiency, their output and their incomes. This has been done in Georgia. Farmers, feed men, processors, grocers, consumers, all profited when feed industry capital flowed out, created output and was safely recovered. That activity was economical for all. The need facing us is to keep it so—and that may mean urging some firms to use more credit rather than less. However, it always means using credit wisely.

Finally, I should say that using credit for business operations can be quite profitable, be it a farm or a

pep-up beef and dairy rations and profits



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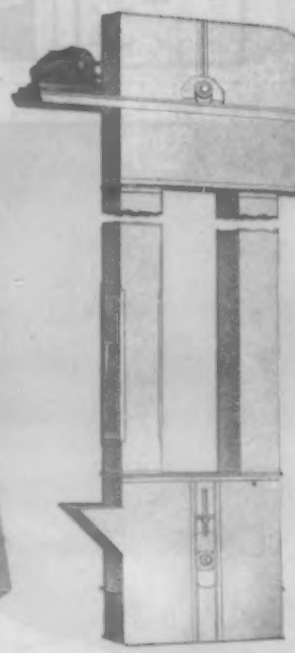
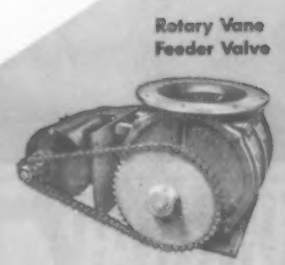


Bucket Elevator

Slider-board Belt Conveyor

Standard Screw Conveyor



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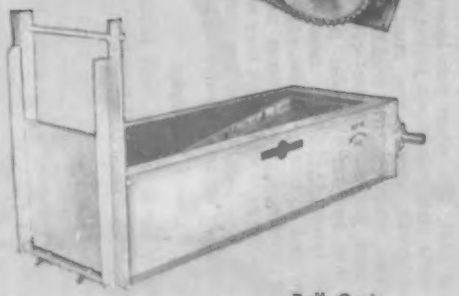

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SS/107

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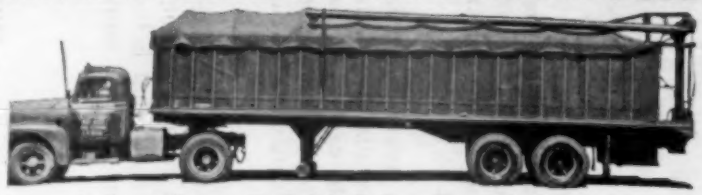

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feed business. To stay debt free may be to put on an economic strait jacket. Many farmers, I believe, are doing that. Yet when you loosen a farmer's economic strait jacket with some credit, clearly you must distinguish which of his credit needs you can justifiably meet—certainly not his long-term needs; perhaps some intermediate-term needs for barn and poultry equipment; but most readily his short-term needs. That is the area where you may wisely give your credit program careful formulation or an intensive review.

Credit Principles

Many firms in the feed industry know that their credit programs are useful and essential for serving their patrons well. I think that feed men extending credit best serve farmers when they follow proven credit principles—not slavishly, but in an enlightened and flexible way. This approach should be welcomed for its benefits. To me, credit principles are guides for action, not devices for killing opportunities. When businessmen use credit principles consistently, they actually unshackle their businesses—they generate income. Ignore the credit principles and you invite losses. This is a vital matter so let's consider it in a little more detail.

Maurice Bass

JOINS NOPCO—Maurice Bass has been appointed district sales manager for the Nopco Chemical Co., Harrison, N.J., it was announced by R. T. Whelan, central sales manager of the firm's agricultural department. Mr. Bass will service the territories of Kansas, Missouri, northeast Oklahoma and northwest Arkansas. He formerly served in Nopco's technical service bureau, preparing formulations for feed manufacturers. He is a graduate of the University of Pennsylvania, with a degree in microbiology. Mr. Bass resides in Kansas City.

Principles help you control credit. At the outset let's clearly grasp the concept of credit—the basic credit transaction. Think of it this way: You have some resources—savings—funds—in excess of your immediate needs. Your neighbor could use a portion of your capital to help accumulate more resources for himself. He tells you his plans; you study him and his ideas and gauge the risks you foresee. You agree to let him use your capital for the purposes he has in mind. A time and form of repayment and a fee for your service are agreed upon. You let him have the funds.

Like any supplier of credit you would assess and limit the risks you feel you can take on the capital you lend. Here is where you rely on credit principles for guidance and for control:

First, the borrower should be worthy—his integrity great. Obvious, you say. Well, maybe so, but defaults by debtors are a commonplace—so

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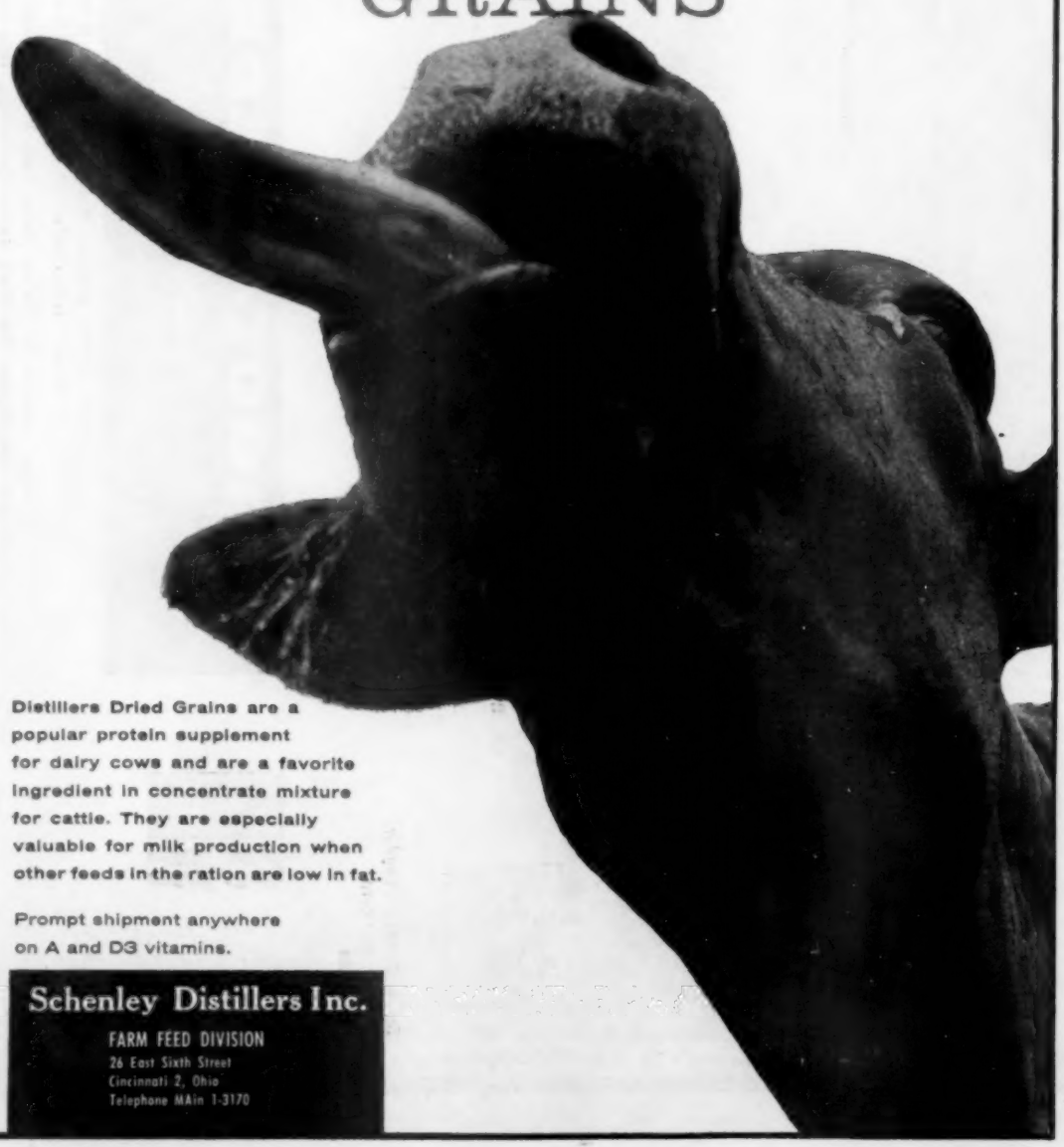

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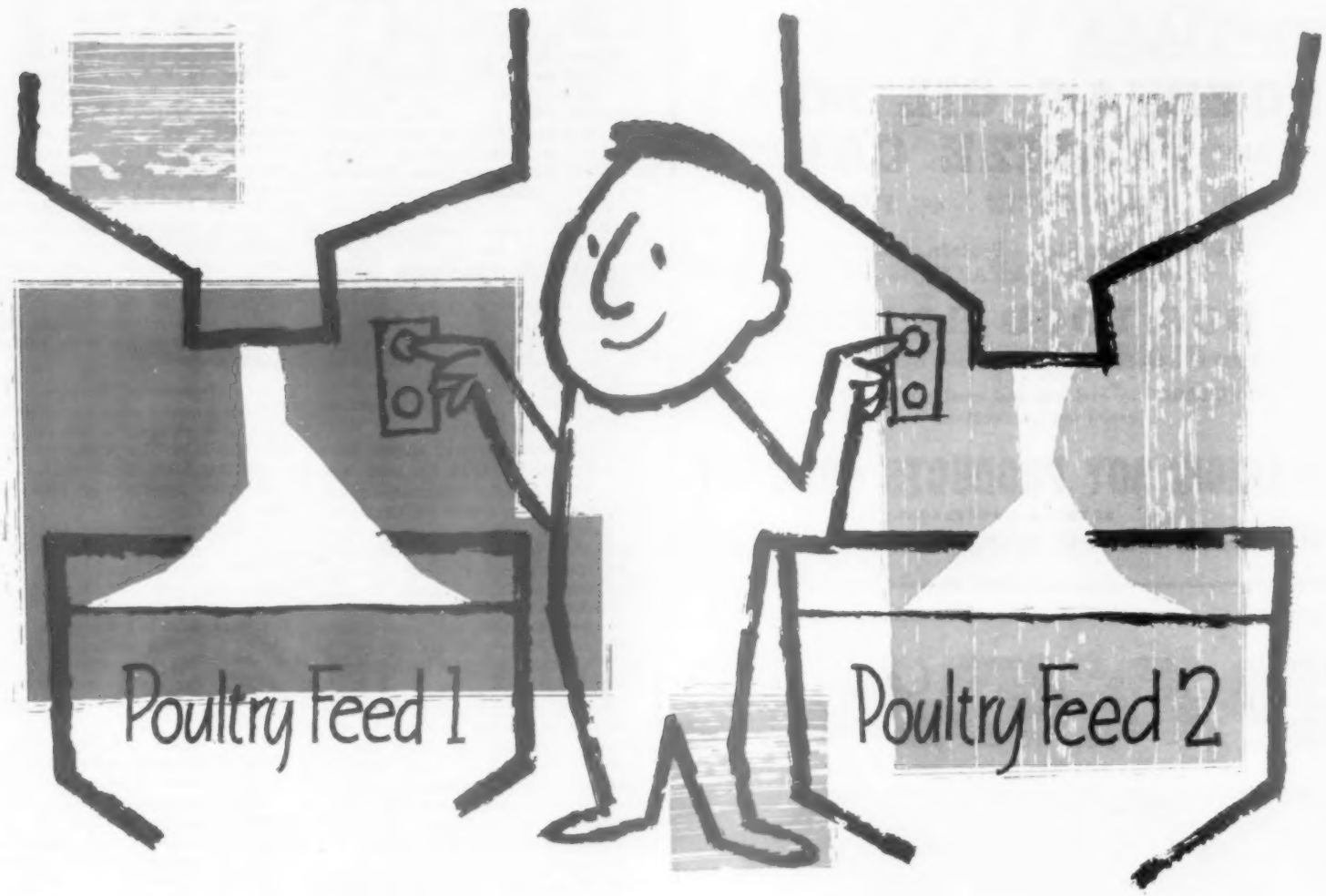

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Morton Iodized Mixing Salt provides great flexibility in mixing poultry feed formulas

As you know, the recommended iodine content of most poultry feeds is about the same from formula to formula and the minute amount required should be premixed to assure uniform distribution in formula feeds. On the other hand, manganese requirements vary considerably and the amount used is much larger, thus minimizing the need for extremely accurate premixing. Therefore, it often pays to add the iodine with a premix, such as Morton Iodized Mixing Salt, while adding manganese and other ingredients separately.

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In addition to Iodized Mixing Salt, Morton also makes Trace-Mineralized Mixing Salt and extra-free-flowing Special Mixing Salt. Morton's nation-wide distribution enables you to get these products quickly anywhere in the U.S.A.

**Cuprous Iodide is patented for use by the Morton Salt Company (pat. No. 2,772,167)*

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maybe creditors too often let the obvious go unnoticed. You agree, I'm sure, that a person with a reputation for failing to keep his word is not a favorable applicant for credit.

A worthy borrower also has ability, skill, and experience. Logically, the wise use of funds requires the sound judgment that comes from experience. A man lacking farming experience, for example, would be a weak candidate for a farm loan. Creditors can offset insufficient experience to some extent, of course, when they supervise and guide their debtors—a device some of you feed men use in financing broiler production. Sometimes creditors substitute the borrower's equity or collateral, or that of cosigners, for experience—a practice that may make the loan "safe," but that won't necessarily make the loan "sound." That is, repayable from earnings. Hence it can be an unwise practice.

Second, the borrower should have the capacity to repay his loan. You know that when a businessman obtains short-term credit for buying an inventory of raw materials he must show that he can make repayment from his business receipts—receipts from sales of finished goods or sales of stocks on hand or from other business operations. So, too, your dealers and farm borrowers are obliged to repay from earnings on current operations.

Lenders, of course, realize that capacity to repay and capacity to earn are not synonymous. High earning capacity nullified by high indebtedness signifies low repayment capacity. To assure that a borrower has repayment capacity, a lender seeks the answers to several questions:

a. What will the proceeds of my loan be used for? Production, capital improvements, consumption, or speculation.

b. Will the credit I give this borrower help him increase his income by increasing his output or raising his efficiency?

These two questions are best answered when a borrower offers a well-conceived plan for using the funds. Through careful planning he analyzes his business resources and knows clearly the goals he wants to reach, how he will use his funds, the amount he needs, and his ability to repay a loan. Both borrower and lender benefit from such planning because it establishes a sound base for a loan. Invariably, you see, credit is a tool for accomplishing plans rather than a substitute for plans. Credit helps us to bring plans to fruition; it does not replace either the potential or the plans.

c. A third question about repayment capacity: What is the source of repayment?

Repayment Sources

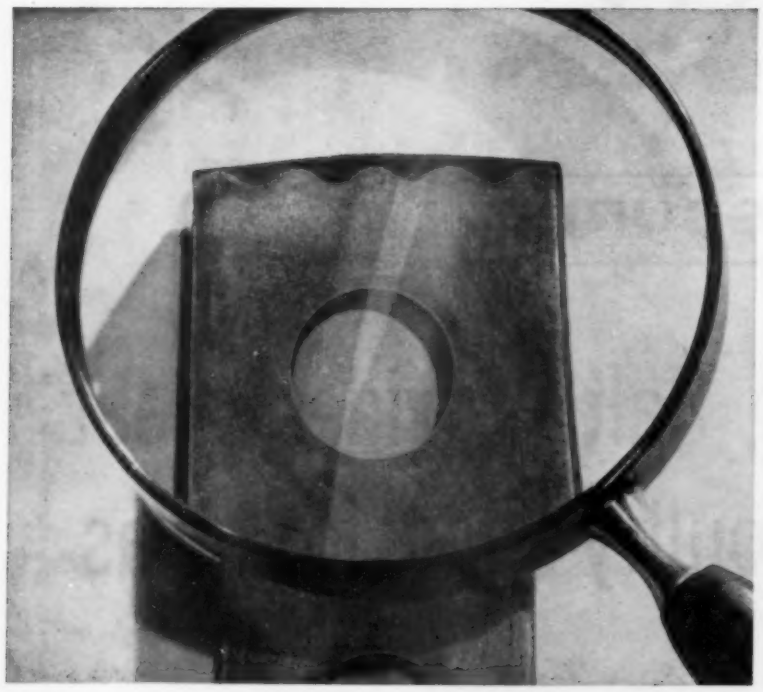
Three sources exist for most businesses — earnings, borrowings, and sale of assets. The proper source for production loans is the debtors' current gross incomes—or gross earnings.

Sometimes borrowers fail to distinguish between personal loans and business loans; hence their repayments may slip. Farmers, especially, find the distinction difficult because the farm often is a home and way of life as well as a business. Their failure to restrain borrowing for consumption can drain funds from their businesses and reduce their capacity to repay.

d. A fourth question: Will the terms of my credit contract strengthen the borrower's capacity to repay?

When you make the loan proceeds available as needed and add justifiable advances as unforeseen needs arise, you assure ultimate repayment. Equally important is setting due dates for payments at times when your customer gets his income. A willingness to postpone payments when an emergency or unavoidable delay occurs also is helpful. Finally,

PACAL



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"Hydan" has been tested in feeding trials at Du Pont's Stine Laboratory. Mixed in feed formulations where the need for supplemental Methionine was indicated, "Hydan" was a fully effective Methionine supplement.

For peak performance, a high energy level feed must be balanced by the proper amount of effective protein. Now the best way to obtain an effective protein in today's poultry rations—at the best possible cost—is to use new "Hydan" as your source of supplemental Methionine activity.

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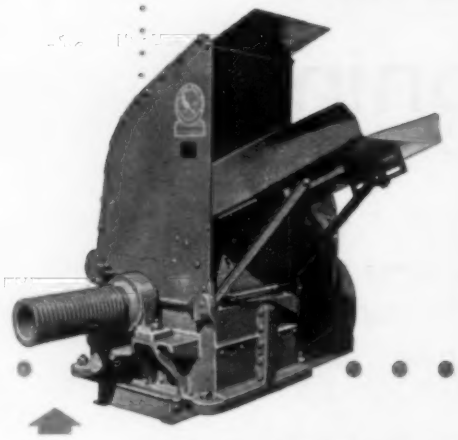

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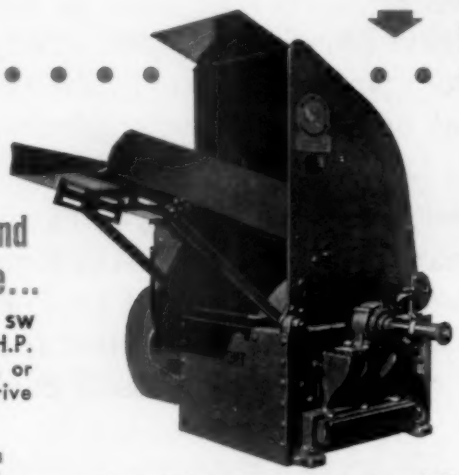

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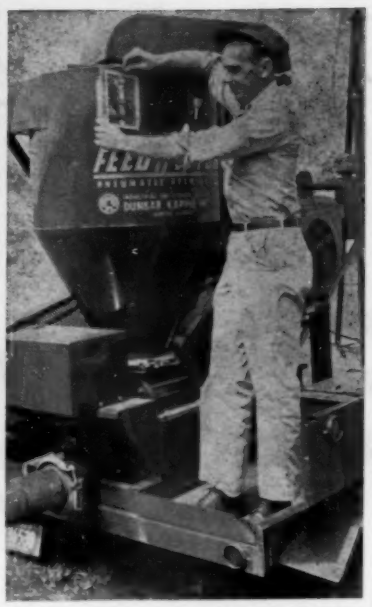

MAGNETIC SEPARATOR—Dunbar Kapple, Inc., Geneva, Ill., manufacturer of a portable pneumatic feed mover, the Feed-O-Vator, is now installing in its equipment a non-electric magnetic separator at the intake of the hopper to catch any metal objects as the feed goes through. The picture shows a Feed-O-Vator operator removing from the magnet's face "an average catch" of nails, bolts, etc. The magnetic separator is a product of Eriez Manufacturing Co., Erie, Pa.

providing for instalment payments may strengthen your customer's capacity to repay.

e. Fifth: Does this customer owe so many creditors that conflicts and uncertainties about his debts and their repayment are likely?

A borrower's ability to repay a loan, of course, has too many facets to treat it in an offhand manner. I believe, therefore, that creditors are well served when they stress the principle of repayment capacity—but with flexibility rather than rigidity.

Third, credit should help a borrower make financial progress. Ideally used, credit helps a borrower increase his financial worth or equity. Either he obtains more physical assets or he gets earnings that increase his liquid assets. When a borrower's equity diminishes over time, his creditors may advise a change in his business operations or his financial plans or both.

Lenders know that owner equity has a significant role in all credit transactions. When an owner's equity is large, his financial strength is great and he can stand certain losses—he can accept sizable risks without fearing that losses will force him out of business. He may, for example, experiment with new enterprises, or he may borrow large sums.

The principle of financial strength and progress, however, can be flexibly applied. Equity may be low, but economic resources sufficient for development and the capacity of local management may be great. Since some creditors can accept greater risks than others, they may finance persons with capacity but little or no equity.

Finally, a borrower should accept some risk in the credit transaction. He should willingly offer his equity or assets as security for his borrowings. Most creditors, of course, depend upon a borrower's integrity, ability, and capacity for repayment as the first line of security for credit advances. This is true for credit advanced on open account. But creditors often seek a margin of safety through subordinate or secondary or collateral security. Usually such security is property, either personal or real. Rarely do creditors seek security as a weapon for putting firms out of business. Rather, they seek it to protect the borrower's business from ex-

Advertisement

Feed for Thought

By DR. R. A. RASMUSSEN

Pigmented Broilers

The buyers of live broilers have shown a decided preference for heavily pigmented birds. Many housewives apparently do not substantiate this preference, and many dressing plants show utter disregard for maintaining the skin pigmentation after it has been produced.

With the increased feeding of milo grains to broilers, the problem of producing well pigmented birds has received considerable attention. Many products are offered today with varying claims for the production of highly pigmented broilers. To date, studies at the Peter Hand Foundation Research Farm have failed to reveal a pigmenting agent that will economically produce pigmentation on a milo-base ration that is equal to or approaches that pigmentation secured with two and one-half percent alfalfa meal, fifty percent ground yellow corn and BHT (¼ lb. per ton) in the ration. We have tested at recommended and higher levels most of the pigmenting products available on the market. Some contain no detectable xanthophyll.

Present evidence is that xanthophyll (lutein) is the chief pigment present in broiler fat, skin and shanks. This pigment is closely related to carotene and, therefore, is very unstable to oxidative and other conditions. The problem of securing good pigmentation is further complicated by adverse effects of disease and by some ration ingredients such as fats and oils, protein concentrates and minerals suppressing pigmentation.

Some evidence is accumulating that indicates the need for pigmentation enhancing factors. Corn and dehydrated alfalfa meal appear to produce more shank pigmentation than would be expected from xanthophyll determinations on the ration fed. A study was conducted in which milo of a milo-base ration was replaced with corn (50%) and dehydrated alfalfa meal (2½%). Three times more shank pigments were deposited at 5 mg. xanthophyll per pound of ration from corn and alfalfa than from crude xanthophyll oil added to the milo-base ration.

Approximately 10 mg. of xanthophyll per pound of feed is required for a high degree of pigmentation. The milo-base ration employed at the Peter Hand Foundation Research Farm contains less than 0.5 mg. xanthophyll per pound of ration. With 2.5% dehydrated alfalfa meal in the ration furnishing approximately 3.0 mg. of xanthophyll per pound, an additional 6.5 mg. xanthophyll per pound of ration would be needed for high pigmentation. This would require another 6% alfalfa in the ration or 8.5% total alfalfa. Such addition would not be in line with the high efficiency ration concept. Thus, we still need a good cheap and efficient source of xanthophyll for pigmentation of broilers when milo is the grain fed.

R. A. Rasmussen
ASSISTANT DIRECTOR OF RESEARCH, PETER HAND FOUNDATION

Peter Hand

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A division of
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1000 NORTH AVENUE • CHICAGO 22, ILLINOIS

William Black

HESS & CLARK—William Black has joined the research staff of Hess & Clark, Inc., Ashland, Ohio. He will serve as a diagnostic bacteriologist. Mr. Black received a B.S. degree in bacteriology from Michigan State University last June.

cessive debt or loose credit practices and, therefore, safeguard their loans.

These are the credit principles as I see them. My review of the principles should not cause us to have a negative or pessimistic point of view. With a clear concept of credit and an understanding of its limitations, we can use it more effectively. Credit fortunately is typically used in a positive role. You apply the credit principles in varying degrees, of course, depending on the type of credit involved, the risk you can take, the legal and moral restrictions you live by, and other factors.

Some creditors can relax the principles more than others because they can spread or counterbalance their risks. They may serve a diversified economy or a widespread geographic area or a variety of customers. Sometimes they can assume more risk because their equities are large. Sometimes they can closely supervise the management of the funds advanced.

Farmers' Concepts of Credit

As you think about applying these credit principles in actual situations, note this: Many more businessmen now believe that credit can be effectively used to build business or cut costs. Farmers, for example, now think less frequently in terms of "furnish credit" and a dreaded farm mortgage, and more frequently in terms of consumer credit, instalment credit, operating credit, working capital, amortized loans, and the like. They have become conditioned to credit techniques that were strange to them only a decade ago.

Farmers, therefore, probably accept intelligent discussion of their capital needs and appropriate financing for meeting needs. Emotional or personalized comment on credit is less frequent. This probably also is true of many merchants serving farmers. I think this changed attitude is significant. Now you can talk rationally or reasonably with your patrons about credit; about the terms they can live with and how they may best handle their needs — perhaps through a bank or other financing agency. This should encourage you feed men who will supply more and more credit for farm production.

Also, since farmers have a more enlightened attitude toward credit, your sales forces can talk more straightforwardly about credit problems. Here, I believe, is an important feature of credit control for you. I remember vividly my timidity in talking with farmers about financial matters when I sold feed in the late 1930's. No doubt I was timid partly because I lacked experience and knowledge—I didn't know enough about credits or how to effectively tie financing in with my sales effort. I didn't know how to talk diplomatically with potential customers about their finances. I did not think in terms of my firm's capital investments—of safety for capital. I was just anxious to sell feed.

Perhaps you have some salesmen troubled in these ways. You would possibly strengthen credit control in the feed industry if you gave salesmen training and guidance in credit practices. I see such training as one part of a self-help program for credit control in your industry.

Summary

I've discussed increased use of credit in agriculture, the feed industry's larger place in supplying some farmers with credit and the industry's major credit problem—adequate control—and I've suggested some credit principles for the feed man's use.

We all have an interest in financing farm production adequately. Not only does it insure our personal bread and butter, it helps develop Georgia and the Southeast generally. A basic question exists for us—how to use our total financial resources to gain maximum benefit for all yet insure the economic use and safety of these resources. One way, of course, is by working hard to develop the best possible communication and relationship between those controlling and those using the financial resources—principally banks, feed merchants and farmers, in our case.

Feed men can contribute to that end by using credit principles as guides. Your industry, of course, won't usurp the banking function in our economy—that would be unwise. You won't become "behind the scenes" bankers. You can't do it because of the nature of the beast. In contrast to banks, which have capital and surplus to support loans but which also receive deposits they can lend, you have only your equity as a basis for obtaining credit and in turn extending it to others. That's a severe limitation on your role as creditors. So your credit function, as I have implied, is to use credit for facilitating your sales program and building business—yet to use it only when you provide justifiable and needed credit services for your customers.

Nevertheless, the feed industry's credit role is important enough to warrant your continual appraisal of it. Doesn't that role also require that you put ideas and energy into strengthening credit relationships within your industry—into strengthening liaison between manufacturers and dealers on credit terms, into developing clear-cut policies, and making them widely understood and effective by coordinated effort?

That approach, of course, requires policy decisions at the highest level in your industry. It also requires a purposeful inquiry by individual firms into appropriate credit policy—one that will serve not only the firm but agriculture and the economy generally. Finally, that approach becomes effective when you translate policy into action through sales activities in dealers' warehouses and out on the farms.

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"The big difference we found in the 500 RC was in running several tests on the same sample. We credit the large round cell and the 250 gram sample for giving even distribution and the same reading each time. Our customers can easily check when we test a sample. They feel that they are getting a correct reading."

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Linn, Kansas

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Sadorus Co-op Elevator Co.
Sadorus, Illinois

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"We have had our New 500 RC Tester long enough to know what it will do. I like the idea of a 250 gram sample because I think you get a more accurate test. We have found that there is no difference between a cold sample and a warmed up sample. Customers like it because it reads itself. This is our third Steinlite, and we think it is a wonderful machine."

Franklin Petrie
Ackermans Inc.
Popejoy, Iowa

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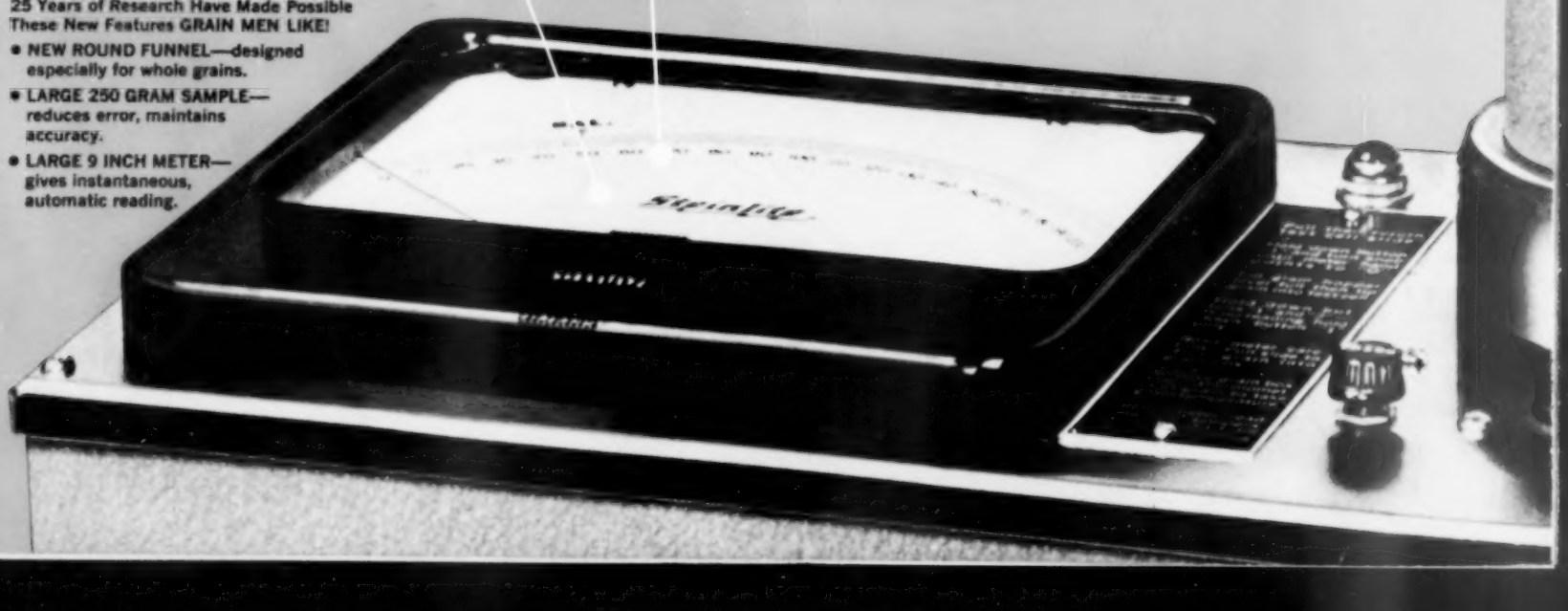

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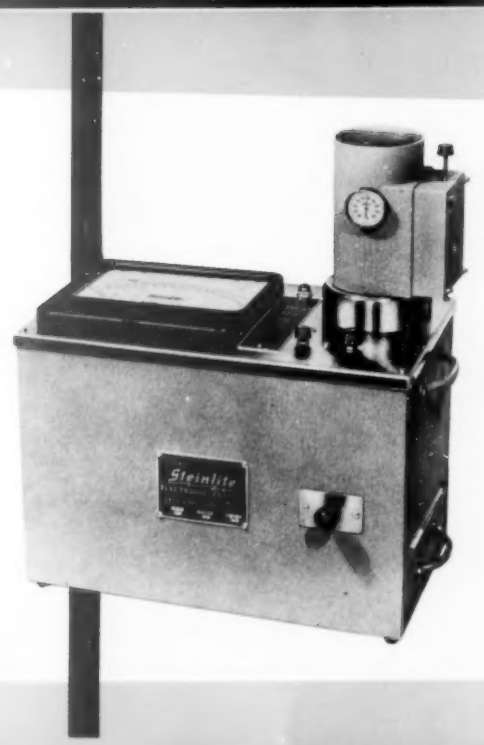

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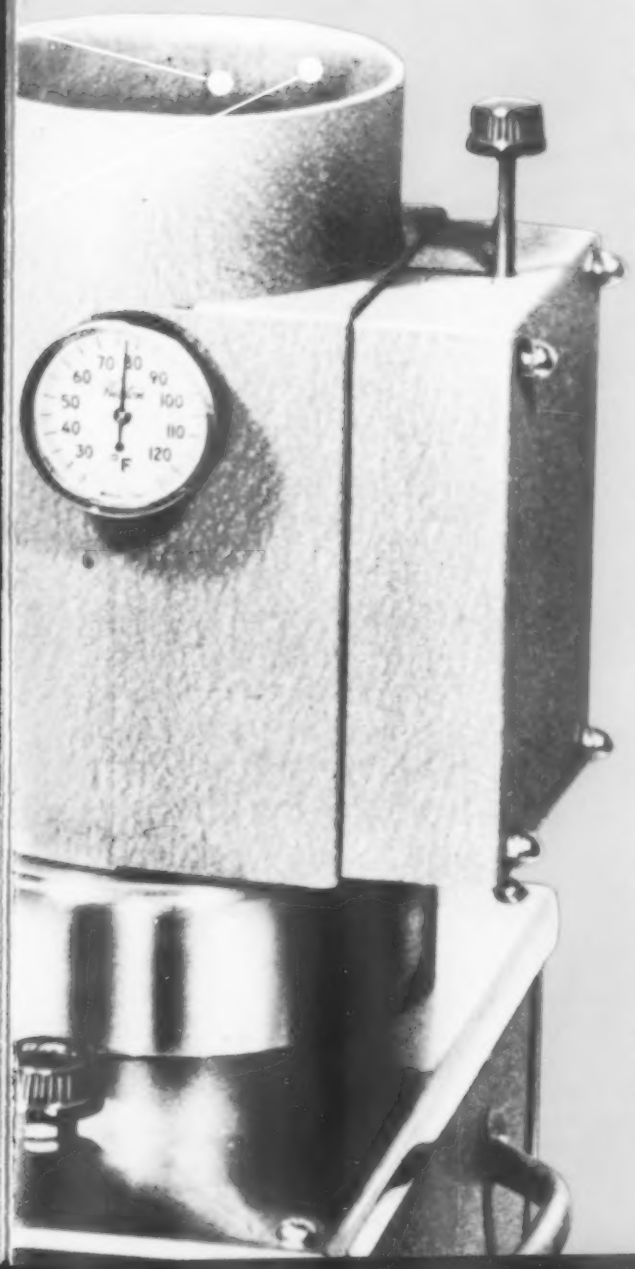

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Grain Sorghum Palatability for Poultry

Whole and processed grain sorghums appear acceptable to laying hens when fed with free-choice concentrates

By Dr. W. H. Hastings and Dr. Paul E. Sanford
Kansas State College

When the 1957 Kansas grain sorghum crop exceeded that of wheat, it was recognized that various hybrids and open pollinated sorghum varieties which had contributed heavily to the total yield, had no history of palatability to livestock.

Therefore, early in the winter of 1957, funds were made available to test grains from several experimental plots for acceptability to dairy heifers and to mill the grain by whatever method possible to determine its most acceptable form.

Part of the grain received at the college was of sufficient quality to interest the poultry department in a single palatability feeding test.

A commercial lot of grain sorghums, dried to a moisture content of 12.4%, was milled by grinding, pelleting, pearling, cold cracking, rolling after steam tempering and rolling after water tempering.

A 32% protein concentrate was formulated according to Table 1 to be fed free-choice with the milled grain products and the whole grain. Each feed product was placed in hanging, cylindrical feeders of 50 lb. capacity, one type of grain to a feeder and the concentrate in two feeders.

Position of the feeders was changed daily in a predetermined criss-cross manner to eliminate the chance of feed acceptability due to environmental factor. An 18 ft. by 36 ft. floor-type laying house was available with 140 S. C. White Leghorn laying hens, excess from breeding flocks at the poultry farm and with no special culling for production.

For three weeks, with the concentrate in mash form, feed was consumed in amounts and percentages of total feed as shown in Table 2. All milled grain was eaten except the ground product. The low consumption of concentrate mash indicated its lack of palatability, probably due to the fact that the birds had been on a crumblized complete ration previous to this test, and therefore the remaining supply was pelleted and crumblized.

A pearling machine had been designed and manufactured and at this time a pearled grain was made available. Pearled grain replaced the ground product and the feeding test was continued as before with six feeders containing grains and two containing concentrate.

For the remaining time that these feeds were offered, all products were acceptable. However, the pelleted products and those rolled with steam tempering developed increasing amounts of fines due to picking and selection, causing a decreasing consumption of these materials.

When, at the end of the test, all grains were withheld for a few hours and each type offered as the only

EDITOR'S NOTE: The rapid increases in grain sorghum grown in Kansas in recent years, plus the question of this product's palatability in feeds, gave rise to the experiment reported in this article. The work was carried out at Kansas State College, Manhattan, by Dr. W. H. Hastings, department of flour and feed milling industries, and Dr. Paul E. Sanford, department of poultry husbandry.

TABLE 1. 32% Poultry Concentrate for Free Choice Feeding With Grain Sorghums

Soybean oil meal (44%)	760 lb.
Fish meal (60%)	200 lb.
Dehydrated alfalfa meal	200 lb.
Corn gluten meal	200 lb.
Distillers solubles	100 lb.
Wheat standard midds.	100 lb.
Limestone	200 lb.
Dicalcium phosphate (18%)	160 lb.
Salt	40 lb.
Proferm-6	2,500 gm.
Trace mineral mix	1,800 gm.
Aurofac-10	2,300 gm.
Vitamin A (10,000/gm.)	2,000 gm.
Vitamin D (3,000/gm.)	1,000 gm.
Choline chloride 25% mix	2,000 gm.
Fortafeed 2-4-9-90	2,300 gm.
Methionine	2,000 gm.
Soybean oil meal carrier	2,260 gm.
Total	2,000 lb.

Special Report to Feed Manufacturers . . .

PRO-GEN (Arsanilic Acid) in Protein Supplements for Swine

By Douglas V. Frost and Henry S. Perdue

Practical tests firmly establish the safety and efficiency of this growth stimulant in protein supplements

For almost six years, PRO-GEN® (Arsanilic Acid, Abbott) has been used effectively in complete starter and grower feeds for swine. The extent of the benefits varies considerably—depending upon the health of the pigs or hogs. If disease organisms are present, an increase in growth rate and feed efficiency results. When little real or sub-clinical disease is present, the response may be less.

Practical experience has proved that ideal conditions with low levels of disease are difficult to achieve under practical farm conditions. With average or even good farm conditions, the increases in daily gains and feed efficiency from Arsanilic Acid have been very good.

Recent research also firmly establishes the safety and effectiveness of PRO-GEN (Arsanilic Acid) in protein supplements for feeding with grain.

Deliberate tests were made to see if any conceivable farm condition would cause hogs to eat unusual amounts of supplement and consequently increase the Arsanilic Acid intake above recommended levels. Some tests were made on unpalatable grains. In others, the protein supplement was fed intermittently to see if protein starvation might cause excessive consumption when the supplement was again made available.

These tests showed that the hogs adjusted their protein intake so that excessive amounts of Arsanilic Acid were not consumed. Thus there is a wide margin of safety for Arsanilic Acid in protein supplements.

First experiments with Arsanilic Acid in protein supplements were reported by Hanson, Ferrin and Singh in 1955 at the University of Minnesota. Later Hanson and Hill, and Hanson, Hill and Meade reported no symptoms of toxicity in free-choice feeding experiments when hogs consumed Arsanilic Acid at twice the recommended level even when oats were fed as the only grain. Arsanilic Acid promoted growth with this method of feeding and improved feed conversion.

In studies at South Dakota State College, Wahlstrom, Kamstra and Olson reported 0.06% Arsanilic Acid highly effective in counteracting selenium toxicity in 40% protein supplement. This exended the earlier findings at South Dakota showing the unique protective value of Arsanilic Acid in selenium-containing feeds for various species.

Experiments at the Abbott Research Farm support and extend these experiment station findings. A 30% protein concentrate was fed free-choice with shelled corn. Some groups of pigs in the experiment were offered supplements containing five times the recommended maximum level. However, no objective symptoms of toxicity were observed and no pathologic changes were noted at slaughter.

For best results, swine supplements should contain enough Arsanilic Acid so that 45-90 grams is provided per ton of total feed eaten. To achieve this, the amount of PRO-GEN (Arsanilic Acid) varies with the protein level of the supplement . . .

Protein Level	Recommended PRO-GEN (Arsanilic Acid) Level
20% Protein	0.02% (180 Gm. per ton)
25% Protein	0.03% (270 Gm. per ton)
30 to 35% Protein	0.04% (360 Gm. per ton)
35 to 40% Protein	0.05% (450 Gm. per ton)

In protein supplement feeding tests at the Abbott Research Farm, meat-type feeder pigs were wormed and placed on a 12-week dry-lot feeding test during the summer of 1957. The pigs were self-fed a commercial *40% protein supplement* fortified with 0.05% Arsanilic Acid. The shelled corn was also self-fed.

In the 12-week test, the 44½-lb. weanling pigs gained an average of 140 lbs. at a feed cost of only $8.47 per cwt. Arsanilic Acid intake was 85 grams per ton of total feed. (The recommended level in complete feeds is 90 grams per ton.) Feed requirements and basic costs were . . .

Corn	2.45 lbs. per lb. of gain
40% Protein supplement	0.56 lb. per lb. of gain
All Feed	3.16 lbs. per lb. of gain
Arsanilic Acid	85 Gm. per ton of total feed

Corn at $1.16/Bu.	$5.05
40% Protein Supplement at $120/ton	$3.36
Arsanilic Acid	.06
Total Feed cost/100-lb. gain	$8.47

These experiments demonstrate the safety, efficacy and economic value of Arsanilic Acid in protein supplements for swine. They indicate that PRO-GEN (Arsanilic Acid) merits full consideration for use in protein supplements on a safe and effective basis.

For more detailed reports on safety and feeding efficiency tests of Arsanilic Acid in all types of swine rations, write or call—Abbott Laboratories, Chemical Sales Division, North Chicago, Illinois.

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Test No. B25819-C

Product tested: Borden's MG 2X-400
Type of test: Broiler Report
Conditions: Floor pens
Chicks: Indian River Crosses
No. of chicks per pen: 100 (50 males, 50 females)
Length of test: Eight weeks, 2 days

Pen No.	Diet	Weight Av. Lbs.	Feed Conversion
1.	Basal*	3.22	2.09
2.	Basal + 1.25% MG 2X-400 less 2% fish meal and less 2% distillers solubles	3.11	2.09
3.	Basal + 1.25% MG 2X-400 less 3% fish meal and less 2% distillers dried solubles	3.03	2.10

Note that use of MG 2X-400 in the formula permits substantial reduction in ingredient costs.

*Commercial-type ra
meat scraps, fish
meal, poultry by-p

THE BORDEN COMPANY
nutrition research laboratory and test farm
ELGIN ILLINOIS

Test No. B25819-B

Product tested: Borden's FERMACTO 400
Type of test: Broiler Report
Conditions: Floor pens
Chicks: Indian River Crosses
No. of chicks per pen: 100 (50 males, 50 females)
Length of test: Eight weeks, 2 days

Pen No.	Diet	Weight Av. Lbs.	Feed Conversion
1.	Basal*	3.22	2.09
2.	Basal + 0.5% FERMACTO 400 less 2% fish meal	3.17	2.07
3.	Basal + 0.5% FERMACTO 400 less 3% fish meal	3.15	2.10
4.	Basal + 0.5% FERMACTO 400 less 2% fish meal, less 1.25% meat scraps, less 1.25% poultry by-product meal	3.01	2.09

The use of FERMACTO 400 in the formula improves feed efficiency and reduces ingredient costs.

*Commercial-type ration, containing meat scraps, fish meal, feather meal, poultry by-product meal, etc.

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BETTER FEEDS THROUGH RESEARCH

TABLE 2. Feed Consumption of Grain Sorghums and Concentrate During a Single Per Feeding Trial

Feed product	Amount consumed —25 days— lb.	%	—52 days— lb.	%	Total (77) days lb.	%
Whole grains	300	29	411	18.1	711	21.4
Ground grains	none		none offered		none	
Pelleted	175	17	163	7.1	338	10.4
Pearled	none offered		236	10.3	236	7.1
Cold cracked	140	13.5	245½	10.8	385½	11.6
Steamed rolled	119	11.5	183	8	302	9.1
Watered rolled	182	17.6	312	13.7	494	14.9
32% concentrate	117½	11.4	723	32	849½	25.6
Total	1033½	100	2282½	100	3316	100

supplement to the concentrate, each was consumed eagerly, indicating that if only one milled grain had been available, it would have been eaten in an amount approximately equal to the total of all varieties offered together.

Over-all feed consumption during the 11-week period showed a concentrate intake of 25.6%, which provided the layers with a balance of nutrients, as planned in the formulation.

The test was started Feb. 14 and ended May 2. Egg production for February was 46%, for March, 52%, and for April, 63%. A 13-hour day was maintained during the entire test period.

It was observed from this feeding trial that whole and processed grain sorghums were acceptable to laying hens when offered with free-choice concentrate, and that a satisfactory nutrient balance was achieved. Using prevailing market prices for processed grain sorghums and concentrate, a rough calculation of income over feed costs for the test period was $100 for the 140 birds.

California Sheep Men Plan Annual Meeting

SAN FRANCISCO—California producers of lamb and wool will hold their 98th annual convention at the Sheraton-Palace Hotel, San Francisco, Aug. 14-15, it was announced by Dominic Eyherabide, Bakersfield, president of the California Wool Growers Assn.

Don Clyde, Heber City, Utah, president of the National Wool Growers Assn., will address the convention on its opening morning on the sheep industry's position in relation to that of other meat producers.

On Aug. 15, Stuart R. Ward, secretary of the Commonwealth Club of California, will moderate a panel discussion on lamb.

Panel participants will include Mr. Eyherabide, representing the spring lamb producer; Don Phipps, Safeway Stores, representing retailers; Howard W. Eastwood, Los Angeles manager for Wilson & Co., representing national meat packers. To present the position of western independent meat packers will be Ernest A. Gunther of Solano Meat Co., Vallejo. Others who will participate are Dr. Alvin Carpenter, University of California extension livestock economist, and Jay R. Broadbent, Salt Lake City, a large lamb feeder in the Imperial Valley and producer of spring lamb in Wyoming and Utah as well.

The association's breed improvement luncheon Aug. 14 will have as its guest speaker Dr. Clair E. Terrill, acting chief, sheep, goat and fur animal research branch, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Md.

Jerry Sotola, Armour & Co., Chicago; Reed A. Phillips, livestock marketing specialist with the USDA, and John Morley, foreign correspondent, will also speak.

Kansas City Club Plans Annual Picnic

KANSAS CITY—The annual summer picnic of the Kansas City Feed Club will be held at the Saddle & Sirloin Club Aug. 23, it was announced recently by Barney C. McCoy, Ralston Purina Co., club vice president and in charge of the social program.

Tentative plans call for the picnic to start about 4 p.m. with a ball game, followed by a social hour, dinner and dancing. Wives are invited to this event, the first for the club since May.

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Purdue Sets Date For Annual Swine Day

LAFAYETTE, IND.—Purdue University's annual Swine Day, sponsored by the department of animal science, will be held Aug. 22 at the livestock experimental farm, three miles north of West Lafayette on the County Farm road, and the Hall of Music on the campus.

Tours of swine experiments at the farm will start at regular intervals from 8 until 10:30 a.m., DST, according to Dr. J. H. Conrad, Purdue animal scientist, and Dr. W. M. Beeson, head of animal nutrition work at Purdue, who are in charge of the day-long program.

Visitors will see experimental results on the effect of pellet, meal and free choice feeding of growing-finishing swine, high moisture corn for hogs, hygromycin and a combination of antibiotics for swine, effects of tranquilizers on growing-finishing swine, effects of arsenicals, combinations of antibiotics and piperazine for growing-finishing swine, response of swine cooled with sprinklers to two levels of energy in the diet and an exhibit on an intensified system of producing swine in confinement.

Later, visitors will tour the Indiana Swine Evaluation Station on the experimental farm.

Lunch will be served at the farm, and the afternoon session, beginning at 1 p.m. will be held in the Hall of Music. L. L. Stewart, Frankfort, president of the Indiana Swine Breeders' Assn., will be chairman.

Dr. J. A. Whatley, department of animal husbandry, Oklahoma State University, will discuss "Breeding Hogs for More Efficient Production of Quality Pork," Dr. M. P. Plumlee, Purdue animal scientist, will give a paper on "Zinc Deficiency and Requirement for Swine." Mr. Conrad will outline results of experiments with "Iron Injections for Prevention of Anemia." Dr. Beeson will discuss "Swine Nutrition, Past, Present and Future."

Cattle Fed Gin Trash, Alfalfa in Texas Tests

COLLEGE STATION, TEXAS — Steer feeding experiments at the Texas Agricultural Experiment Station indicate that alfalfa is necessary in the feeding of rations containing an appreciable amount of ground gin trash.

Gin trash includes burs, stems, leaf trash, immature lint, seed and other material resulting from the ginning of snapped immature cotton.

Ground gin trash and ground alfalfa hay combinations, not exceeding 50% gin trash, fed with ground sorghum grain and cottonseed meal, produced satisfactory rates of gain and finish for heavy yearling steers.

Combinations of ground gin trash and cottonseed hulls with the addition of 10% ground alfalfa hay, also fed with ground sorghum grain and cottonseed meal, did not produce satisfactory gain and finish.

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Bright Future Assured New England Dairymen

STORRS, CONN. — New England has the uncleared land, the climate and the consumer demand to insure a prosperous future for the region's dairy farmers, says B. A. Brown, professor of agronomy at the University of Connecticut.

Speaking at Agronomy Day at the University of New Hampshire recently, Mr. Brown told his listeners that surveys in Connecticut show that the soil on much of the land once settled and since turned back to brush and forest is potentially better than a great deal now being farmed.

Mr. Brown said he has other reasons for his optimism. The same number of dairy cows are being milked now as in 1879. And the modern cow is much more productive than she was in former days.

New England and Connecticut's climate is highly suitable for perennial grasses and legumes which are used for hay, pasture and silage. The climate is also comfortable for the cattle. New England winters are about the same as those in several other northern states which are Connecticut's chief competitors for the milk market, he said.

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Nutritional Value Of Eggs Told in PENB Leaflet

CHICAGO—A six-page leaflet explaining basic facts on the relationship of eggs to cholesterol, dietary fat and general nutrition is being circulated to doctors, food scientists and writers by the Poultry & Egg National Board.

Entitled "A Scientist Speaks About Eggs," the leaflet was prepared by the PENB in cooperation with its technical research advisory committee.

It explains that the level of cholesterol in the blood is not influenced significantly by the amount present in food eaten, "according to best scientific knowledge."

Following a brief explanation of coronary heart disease (atherosclerosis), the discussion continues, "Patients with atherosclerosis are generally known to have higher blood levels of cholesterol than most persons, but the exact relationship between blood cholesterol levels and heart disease is not known. Many people with high levels of blood cholesterol never develop coronary heart disease, and many people with low blood cholesterol do contract the disease."

Dietary Fat

On the dietary fat problem, the new PENB leaflet points out that, "Recent scientific evidence indicates that the blood level of cholesterol may be influenced by the type of fat in the diet rather than by dietary cholesterol.

"Although additional research is needed, it has been found that dietary sources of unsaturated fats (usually the 'soft' fats, liquid at room temperature) tend to lower the level of blood cholesterol. Saturated fats (those usually 'hard' or solid at room temperature) in the diet tend to raise blood cholesterol levels."

The section then refers to one of the special favorable attributes of eggs and poultry meats—the high proportion of unsaturated fats to saturated fats. It says, "Eggs and poultry meats contain a high proportion of unsaturated fats to saturated fats, which is very desirable. Eggs are also high in linoleic acid, and essential fatty acid."

Reproduced in the section for comparative purposes is a table showing the amounts of saturated and unsaturated fatty acids in some everyday foods. Data used in the table were those reported by Hayes and Rose in the Journal of the American Dietetic Assn.

Nutrients in Eggs

The concluding section, "Nutritive Value of Eggs," shows in chart form the abundance of important nutrients in eggs. It says, "When the values of these nutrients are compared with the daily allowances of the food and nutrition board of the National Research Council, it is found that two eggs supply an impressive percentage of essential nutrients—an average of 10 to 30% for adults."

The information contained in this leaflet is documented by 12 references from Journals of the American Medical Assn., American Dietetic Assn., reports of the National Heart Institute and American Heart Assn., as well as from government agencies, government departments and the nutrition board of the National Academy of Sciences.

They are available for $2.70 per 100 in quantities less than 1,000 and $25 per 1,000 in quantities of 1,000 or over. Sample and order form are available at the Poultry & Egg National Board, 8 S. Michigan Ave., Chicago 3, Ill.

Research Reported on Cottonseed Meal Lysine

NEW ORLEANS—Severity of the processing conditions, rather than the method of oil extraction, is the major factor in destruction of lysine in cottonseed meal.

This was reported recently by Wilda H. Martinez and V. L. Frampton, researchers at the southern utilization research and development division of the Agricultural Research Service. The division is located at New Orleans.

The report stated that the findings should be of interest to processors of cottonseed meal, since lysine content is a highly important factor in the nutritive value of the meal.

"Lysine, an essential amino acid, is especially sensitive to high temperatures. Autoclaving for two hours has been found to reduce the lysine content of cottonseed approximately 35%; in chick-feeding studies a similar two-hour autoclaving period reduced the nutritive value of the cottonseed meal by approximately 70%. Extremes of temperature and pressure are blamed for destruction of lysine during commercial processing," according to the report.

Details of the study were published in a recent issue of Agricultural and Food Chemistry under "Correspondence—Lysine Content of Cottonseed Meals." Reprints may be obtained without cost from the Southern Utilization Research and Development Division, P.O. Box 7307, New Orleans 19, La.

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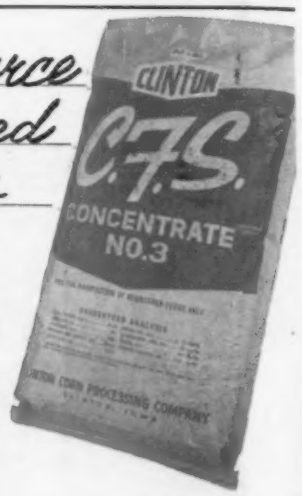

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Indiana Partners Boost Volume By Buying Second Feed Store

By Al P. Nelson
Feedstuffs Special Writer

When a couple of aggressive feed merchants build their business to the point where there doesn't seem to be much opportunity for further expansion, what's the next step?

This problem confronted Wayne Beerbower and Lynn Klopfenstein, operators of a feed store at Grabill, Ind. They answered it with a step which they have not regretted. They bought out a feed store and hatchery at Huntington, Ind., and now have two thriving feed stores instead of one.

Lynn Klopfenstein is in charge of the Huntington Hatchery, while Mr. Beerbower owns and handles the Grabill feed establishment. Mr. Klopfenstein's job has not been easy since the two partners took over the Huntington store about two years ago, but he has accomplished much. The store had been allowed to decline, and so Mr. Klopfenstein had to start practically from "scratch."

Builds Five Routes

However, by working hard and by calling on farmers in the area constantly Mr. Klopfenstein has been able to build up five routes which cover a lot of territory in this agriculturally rich section of Indiana.

"We are sold on the route system," reports Mr. Klopfenstein, who acts as a salesman, manager and part-time delivery man. "I have three other men to help me, plus some part-time help and we are getting things moving around here. I try to meet all my customers personally on the routes, even if I don't make deliveries regularly. Once you meet a customer and talk with him about his feed problems, then you are better able to handle his requests for merchandise, whether they come in by mail, by telephone or through the routeman."

Mr. Klopfenstein also says that once a farmer becomes accustomed to a weekly or twice-a-month call from his feed dealer on a scheduled basis, he looks forward to this visit, prepares for it, jots down items he may need, and this helps the route salesman when he calls. The farmer does not view the salesman with hostility but rather as a helper in the job of making quality feed bring him a greater profit.

Another point in favor of route selling, states Mr. Klopfenstein, is that when the delivery truck leaves the main store, it is usually loaded heavily with feeds and other farm supplies to be delivered to farmers. The heavier the load, the less the delivery cost per bag of feed, bale of wire, or other units. In another type of operation, where route selling is not practiced, the tendency is for a dealer to make many delivery trips with a third or half load, and this ups the delivery cost per unit.

Recently, a truck load which left the Huntington Hatchery for route delivery included bottled gas for broiler houses, feed, waterers, baled wire, salt, and remedies.

"It isn't often that our truck leaves the store without a full load," says Mr. Klopfenstein, "and that's the way we like it. However, if a customer wants a delivery in a hurry, we'll make it, even if it is a small amount. That's the kind of service which is building our business."

Another way in which Mr. Klopfenstein is building business is through orderly, effective display. He has a large display room with plenty of fine window space. He uses wall shelving and floor islands to excellent advantage and carries many products there. For example, he does a fine volume on dog food through large, well-displayed stocks. Insecticides and sprayers also sold well during the past summer, due to good display.

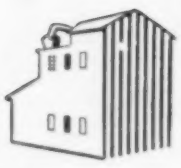
Broiler Feed Sales

While Mr. Klopfenstein sells dairy, poultry and hog feeds, he is working to build up a broiler feed volume, and is succeeding. Broiler growing in this area is increasing quite rapidly, with quite a few small, medium and large-scale operations. Whenever Mr. Klopfenstein hears of a farmer thinking about raising broilers he gets in his car and drives out to visit him. Alertness like this has helped land many a feed account.

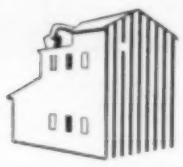
The feed firm also sells chicks hatched in the Huntington plant, and Mr. Klopfenstein expects to increase this phase of the business during the coming year. Both feed tonnage and chick sales have trebled in a little over two years.

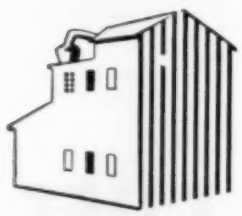
"It seems to me that the biggest job a dealer has to do in a new community is to get himself known," reports Mr. Klopfenstein. "That means getting out and talking to farmers so they can see what you look like and see if you are the type they can depend on. Once you do that, a lot of farmers will begin to try you out. If you come through you'll

GROWING...



by feeds and services—





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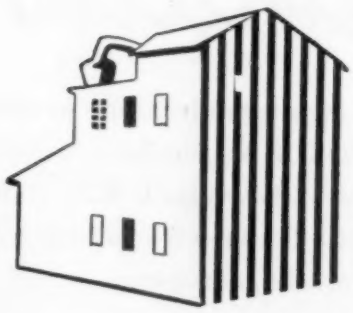

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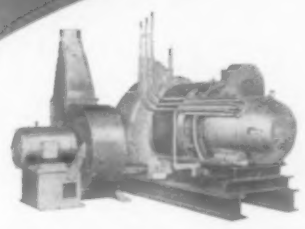

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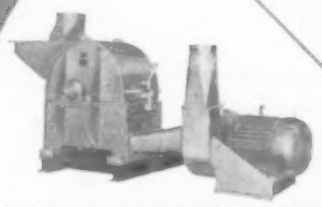

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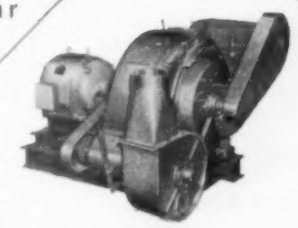

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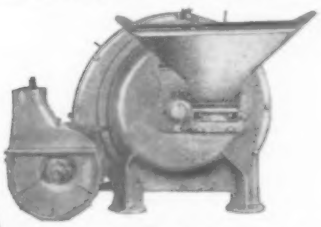

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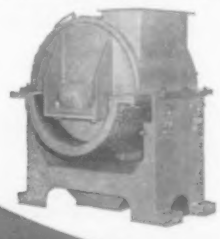

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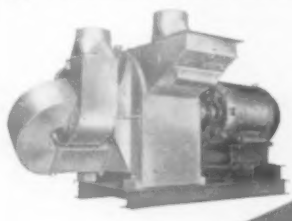

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get more of their business. Sure, it's a lot of work, but a business won't thrive without it."

During the first year of its operation under new management, the Huntington Hatchery, Inc., is doing more advertising than usual. Mr. Klopfenstein uses newspaper display ads, some radio spots, and also some classified section advertising. An annual chicken barbecue in the fall has helped greatly to promote good-will and to advertise. This past October 450 customers and families enjoyed this event with plenty of food and good entertainment.

The feed store and hatchery are located on an important, well-traveled highway south of Huntington, and many farmers come this way to town to do their shopping. The bright, clean appearance of the feed store attracts them, and they find easy off-the-highway parking here. This induces many of them to stop in, take a look and do some buying.

Speakers Named For North Carolina Summer Convention

ASHEVILLE, N.C.—W. E. Glennon, president of the American Feed Manufacturers Assn., Chicago, will be one of the featured speakers of the annual summer convention of the North Carolina Feed Manufacturers Assn.

The meeting will be held Aug. 8-9 at the Grove Park Inn here.

Mr. Glennon will speak on "Our Changing Industry" to open the program after the welcome is given by Gil Brauch, Charlotte, president of the North Carolina Feed Manufacturers Assn., and Tom Watkins, National Gypsum Co., president of the allied association.

Other speakers on the program are Patrick B. Comer, management consultant, Greensboro, who will speak on good employee relations; Dr. C. E. Bishop, head of the department of agricultural economics, North Carolina State College, who will speak on integration in agriculture; Dr. B. H. Kinsey, president of the North Carolina Veterinary Medical Assn., on "Our Working Relationships;" Eugene C. Holcombe, director of advertising and sales promotion, the Borden Co., New York, on "The Five-In-One Man."

Also scheduled for the two-day meeting are a golf tournament, the annual convention banquet and separate business meetings of the manufacturers' association and the allied association.

Molasses Fed to Dairy Calves in Vermont Test

BURLINGTON, VT.—Cane molasses may be used very satisfactorily as part of the ration for feeding young calves, according to Dr. John A. Newlander of the University of Vermont animal and dairy husbandry department.

Reporting on research conducted at the Vermont Agricultural Experiment Station, Dr. Newlander says, "It was also found that larger amounts than usually recommended may be fed to mature animals."

Studies made with Kenneth S. Chapman are reported in a new experiment station pamphlet, "Cane Molasses for Dairy Cattle."

For young animals a maximum of 2 lb. daily proved to be a satisfactory amount. This quantity replaced a little over 1.5 lb. grain. For animals from 8 to 18 months, 3 lb. molasses substituted for 2 lb. grain proved satisfactory.

For milking cows, 7.5 lb. molasses daily was the maximum amount that would be consumed when fed with high-moisture grass silage and grain.

In general, a pound of molasses is equal in feed value to 0.75 lb. grain, to 3 to 4 lb. silage, or 1 lb. of good hay, Dr. Newlander said.

The price of molasses relative to other feeds is the major factor to consider when deciding whether or not it will be fed. The price must be low enough not only to make molasses a cheap feed but also to offset the extra labor involved in handling it.

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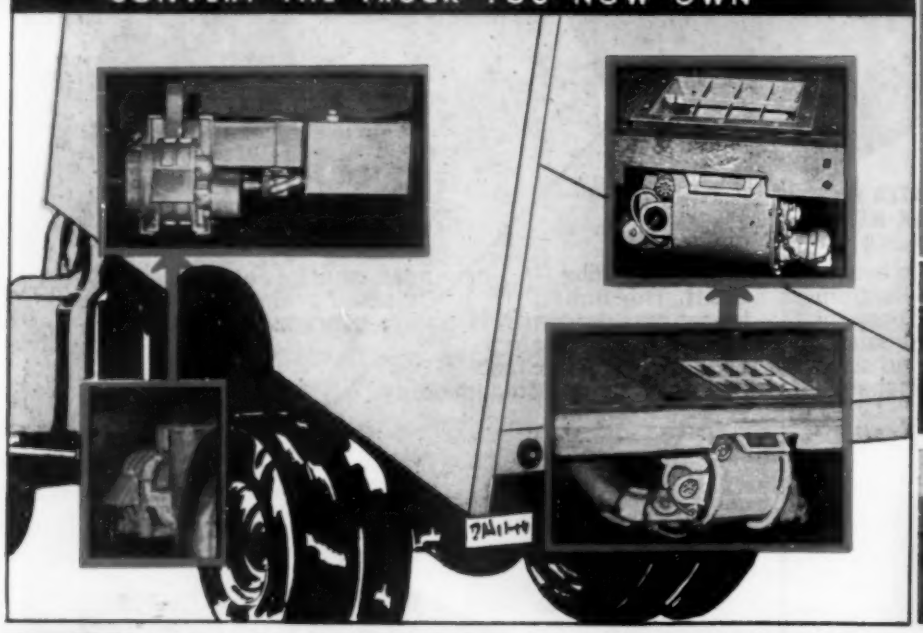

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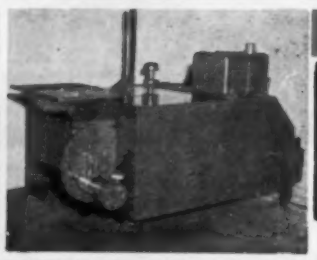

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POULTRY

(Continued from page 46)

Hatchery, Kendallville, Ind.; John F. Bergdoll, Allied Mills, Inc., Ft. Wayne, Ind.; Glenn T. Searcy, Indiana Farm Bureau; Sam F. Ridlen, extension poultryman, University of Illinois, and Howard Hobbs, Oak Manufacturing Co., Tipton, Ind.

The "jury of experts" was made up of the following: Dr. B. B. Bohren, R. D. Darley, Dr. H. E. Moses, Dr. J. C. Rogler, Dr. W. J. Stadelman, J. W. Sicer and Dr. J. H. Gregg. All were from the Purdue staff with the exception of Dr. Gregg.

Questions were submitted and discussed by the servicemen's panel and were referred to the jury for decision and answer. Quizmaster of this event was Henry D. Mangus, Manager Arbor Acres Farm (Midwest), Thorntown, Ind.

Management Topics

"Range vs. Confinement Rearing of Layers and Breeders" was presented by Vernon E. Cummings, Quaker Oats Co., Libertyville, Ill. A number of advantages and disadvantages of both systems were pointed out, and examples of research conducted by different institutions on the subject were cited.

Also on the program were Jim Marr, poultry research division, Ralston Purina Co., St. Louis, Mo., and John S. Frederich, general manager, Creighton Bros., Warsaw, Ind., who discussed "Cages vs. Floor Layers." Mr. Marr discussed egg production in cages, giving the advantages and disadvantages of individual cages as compared to floor management. Also comparative costs of the different methods of housing layers were covered in the comparison. Mr. Frederich told of their work on slatted floors and on litter. Each system has its advantages and its disadvantages. Each system can work if properly designed and managed, he concluded.

"What Can We Expect from Controlled Environment?" was discussed by Kenneth A. Jordan, Purdue Department of Agricultural Engineering. He told the group that the systems as to cost are as follows, with the first being the least expensive: Natural ventilation, forced ventilation, evaporative cooling, mechanical cooling and solar cooling. The purpose of designing a poultry house from functional requirements also was covered.

"Housing Management Systems" were summarized by Joe W. Sicer, Purdue extension poultryman, followed by Dr. R. L. Kohls of the agricultural economics department, Purdue, who in a closing message discussed "Where Do We Go From Here?" Dr. Kohls pointed out that in his estimation our problem in the future will not be to produce quality eggs, but to market them.

Other Speakers

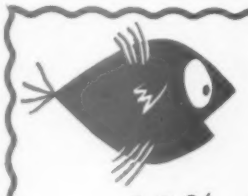
Among the other speakers were Dr. George F. Godfrey, Honeggers' & Co., Inc., Fairbury, Ill.; Paul B. Zumbro, supervisor of the National Poultry Improvement Plan, Beltsville, Md.; Joe Taggart, Chick Master Incubator Co., Cleveland; V. C. Freeman, associate dean of the School of Agriculture at Purdue, and Prof. B. B. Curtis of the Purdue staff, who represented the state chemist's office in outlining the Indiana feed control activities.

Chairmen of the various sessions were Dr. J. Holmes Martin, head of the Purdue poultry science department; D. D. Jackson, Purdue extension poultryman; Robert McFarling, president of the Indiana Poultry Assn.; Robert L. Hogue, executive secretary of the association and Jefferson Kruse, fieldman of the same organization.

A Chick-N-Que dinner for the group was highlighted with a talk by Dr. Earl L. Butz, dean of the School of Agriculture at Purdue on "Working with Industry."

OCCUPIES NEW QUARTERS

CENTRALIA, MO.—The MFA Central Cooperative here has moved its office and the majority of its operations to its new plant here. Included in the construction were a 90-ft., 120,000-bu. concrete elevator and a 40 by 195-ft. warehouse.



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For many years, the rumen, or first stomach, of cattle and sheep has been the subject of continuing studies by scientists searching for the secrets of profitable nutrition. From these studies have come great improvements in efficient and economical feeding for increased meat and milk production.

One major development of this research, during the last 20 years, is the use of urea nitrogen to serve as a source of protein and to facilitate the use of greater quantities of low-cost roughages. As a result, millions of cattle and sheep have produced outstanding results from feeds containing PROCADIAN® Urea.

The rumen is a large fermentation vat where bacteria, protozoa and other micro-organisms ferment and digest feed eaten by the animal. These micro-organisms, along with vitamins, fatty acids and other products of fermentation, are then absorbed by the animal and used to produce meat and/or milk.

Because these micro-organisms have the ability to convert urea into protein and use it along with other proteins, a profitable new method of feeding cattle and sheep has been developed. In addition to serving as a source of protein, urea stimulates the activity of rumen organisms enabling them to break down coarse roughages and other feeds into more digestible form.

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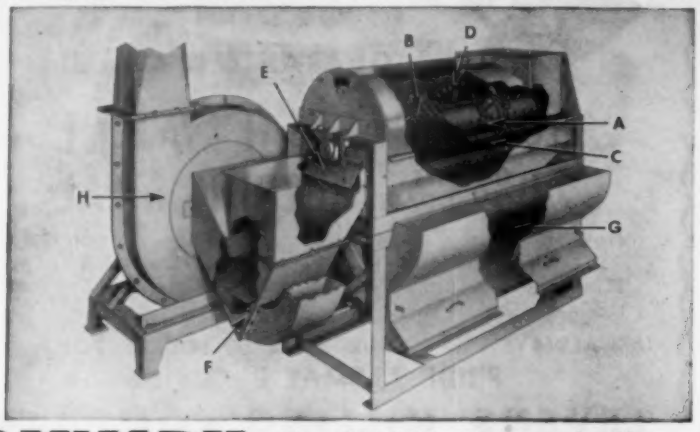

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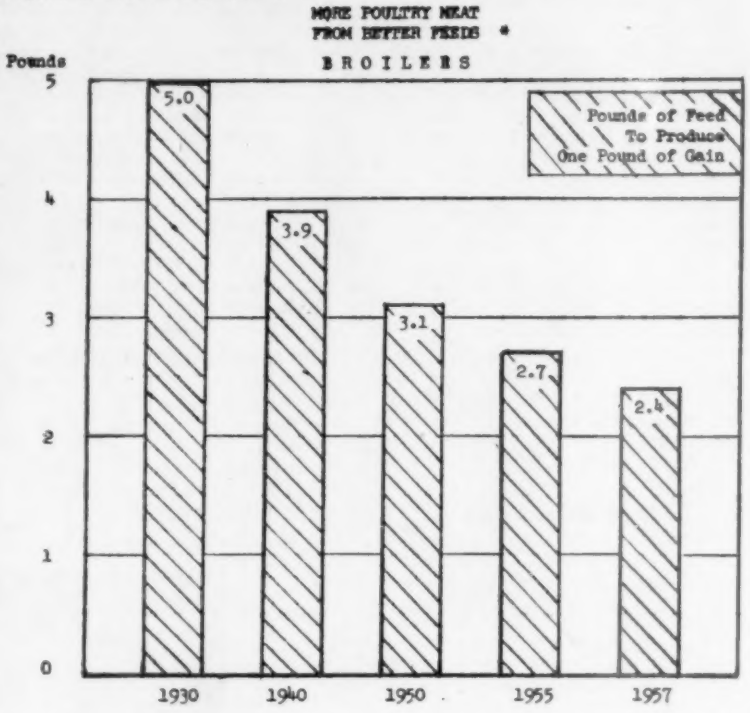
FEEDSTUFFS
LEADER IN THE FIELD

FIGURE 1. Today's broiler feeds produce more meat per pound of feed and faster weight gains than feeds of 1930 and 1940. (*From FOODPOWER. . . USA, Central Soya Co., Inc., Ft. Wayne, Ind.)



PROGRESS

(Continued from page 40)

(World War II) to a low of 394 million in 1957.

PER CAPITA CONSUMPTION OF CHICKEN: The ready-to-cook chicken consumed per person in the U.S. annually has almost doubled since 1935 as shown below:

Year	U.S. Per Capita Consumption of Chicken
1935	13.1 lb.
1940	14.1 lb.
1945	21.6 lb.
1950	20.6 lb.
1955	21.4 lb.
1956	24.3 lb.
1957	25.3 lb. (estimate)

This increase in chicken consumption has occurred while the U.S. population has risen from 127 million in 1935 to 173 million in 1957.

Furthermore, far less working time per U.S. worker is required to buy a pound of chicken today than in 1950. The average U.S. wage earner worked 24 minutes to buy a pound of chicken in 1950 and only 14 minutes in 1957, or 41.7% less time. (Bureau of Labor Statistics, U.S. Department of Labor.)

PROGRESS IN BROILER FEEDING: Meat-type broiler chickens have been developed by poultry breeders for rapid growth, broad breasts, livability, etc. The nutritionists have simultaneously developed efficient economical rations for feeding broilers. These factors in combination with modern management and housing have produced the progress illustrated in Figure 1 from FOODPOWER . . . USA. It is not unusual experimentally to produce U.S. broilers on 2.0 lb. of feed per pound of gain. Only 10 years ago the formula of 3-10-3 was the goal; that is, a 3-lb. broiler at 10 weeks of age on 3 lb. of feed per pound of gain. Today, the commercial formula goal is 3-8-2.4, or a 3-lb. broiler at eight weeks of age on 2.4 lb. of feed per pound of gain. The latter goal is frequently attained in commercial production, although it is not an average annual result.

Feed accounts for about 60% of the cost of producing broilers in the U.S.

NUTRITION OF COMMERCIALLY FED BROILERS: The purpose of this section is to portray the basic principles used in feeding for broiler meat production in the U.S. This portrayal is based on a broad experience in the production and marketing of efficient broiler feeds in America.

In general, rapid growth at a minimum feed cost per pound of chicken produced is desired. This is accomplished by applying basic knowledge of nutrient requirements to the formulation of practical rations for broilers.

The recommended nutrient requirements for starting and growing chickens as set forth by the U.S. National Research Council (Publication 301; 1954) are given in Tables 1 and 2.

These requirements, though adequate for normal growth under ideal conditions, are generally exceeded in commercial broiler feeds that must meet high standards of performance when fed to various breeds, often under environmental stresses. These requirements do not allow for destruction of certain nutrients in the commercial production and distribution of feeds.

Furthermore, these requirements were largely determined prior to the advent of highly efficient high-energy broiler feeds in the U.S.

Protein and Energy: The level of crude protein in commercial broiler feeds in the U.S. varies depending on the productive energy content of the rations. In general, 23 to 24% of

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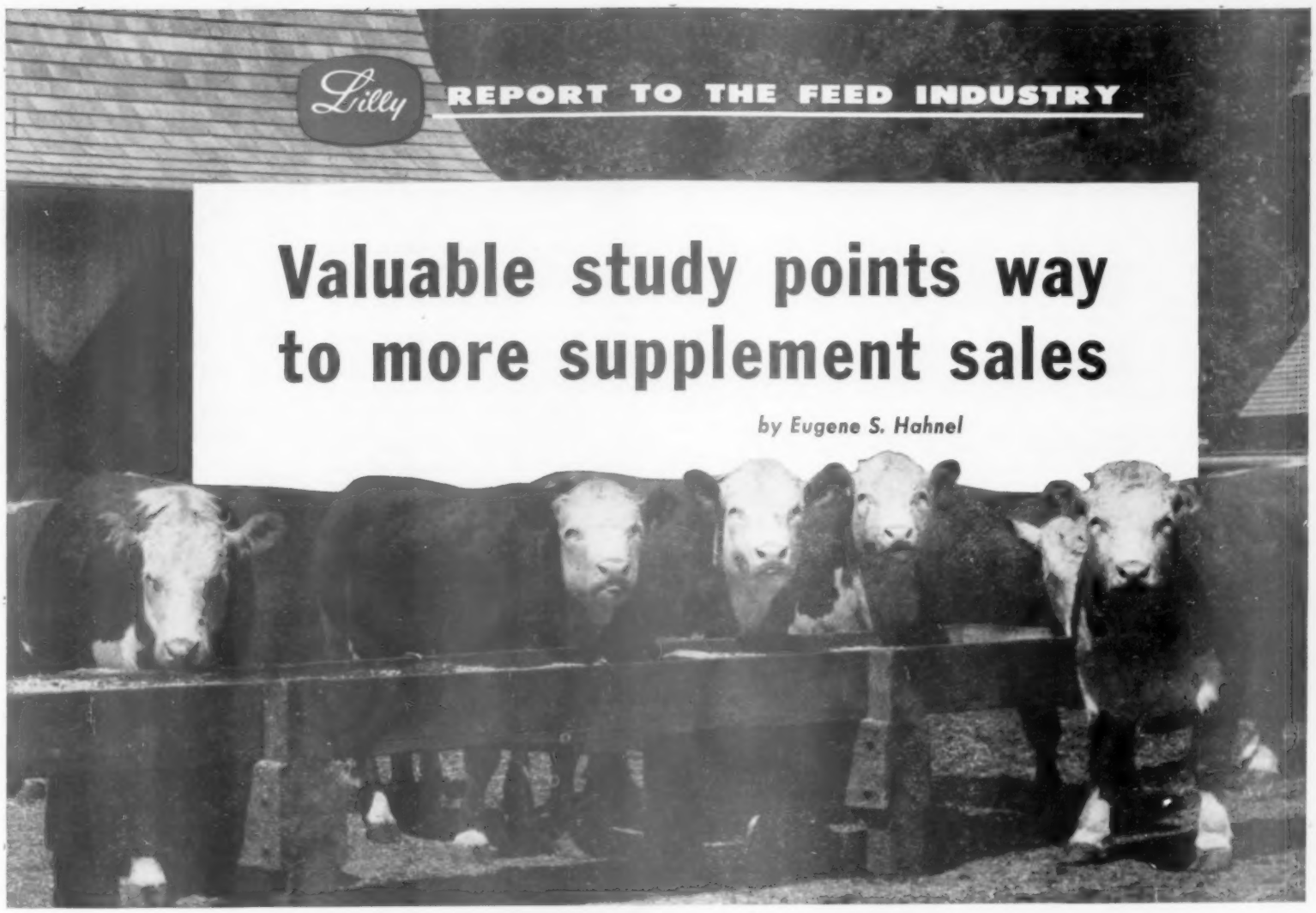

Lilly REPORT TO THE FEED INDUSTRY

Valuable study points way to more supplement sales

by Eugene S. Hahnel

Farmer acceptance research reveals important facts on how, when, and where farm people go for information about new products and ideas for their business.

The acceptance and use of supplements with 'Stilbosol' has been rapid and beneficial. Manufacturers and dealers both recognize that the new additive has helped build new cattle and lamb feed business. But *there's much more* to be had . . . with benefit to cattle feeders and the feed industry alike.

How to do it. A research report* on "How Farm People Accept New Ideas" sheds light on where and how sales points can be applied to convince feeders that they cannot afford to feed without 'Stilbosol'-fortified supplements.

This study shows that farmers go through several stages learning about and adopting new ideas. They are classified as: (1) awareness, (2) interest, (3) evaluation, (4) trial, and (5) adoption.

It is safe to say that the vast majority of cattle feeders have become aware of, and interested in, supplements with 'Stilbosol.' It is estimated that between 60% and 70% have also evaluated, tried, and adopted 'Stilbosol'-fortified supplements. The remainder . . . an important 30 to 40% . . . are on the verge of going through the final stages of "trial" and "adoption."

The study points out that the manufacturer and dealer exert especially strong influence during the final two stages (trial and adoption). Feeders count on this source of information and service to show them *how* to successfully adopt a new idea.

Key selling points. Supplements fortified with 'Stilbosol' are backed by a wealth of factual, convincing selling points. Experience has shown that proper and persistent use of these key points by salesmen and dealers results in a growing volume of supplement business:

- Twenty-three experiments with 'Stilbosol'-fortified supplements in high-energy rations at 11 college experiment stations showed an average increase in daily gain of 15%, at a feed savings of 11% (per pound of gain).
- Supplements with 'Stilbosol' are the safest and most accepted way to give market heifers the gain-boosting benefits of diethylstilbestrol.
- Depending upon type of ration, feedlot and market conditions, cattle feeders have been getting from $10 to $20 return on every $1 invested to include 'Stilbosol' in their supplement.
- Giving cattle 'Stilbosol'-fortified supplements calls for no extra equipment, labor, or time. Cattle get the gain-boosting, feed-saving benefits *automatically* in their rations.
- Carcass quality and grade average almost exactly the same as for cattle fed to the same weight without 'Stilbosol.' This has been proved in scientific tests all over the country.
- 'Stilbosol' supplements can be used in self-feeding operations, as well as for hand-feeding. This is also true for self-fed calves and market lambs.

Stilbosol
(Diethylstilbestrol Premix, Lilly)
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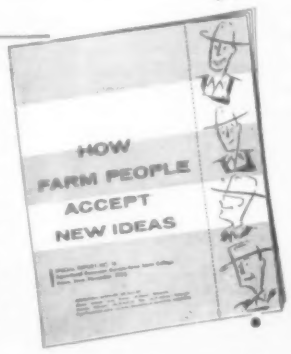
'Stilbosol' is Eli Lilly and Company's trademark for Diethylstilbestrol Premix which is manufactured and sold under exclusive license granted by Iowa State College Research Foundation, Inc., under its U. S. Patent No. 2751303.

*"How Farm People Accept New Ideas" gives the results and conclusions of pioneering research on the special ways farm operators learn about and accept advances in production techniques. This report, "North Central Regional Publication No. 1" of the Agricultural Extension Services, is a valuable, thought-provoking work. Cooperating in this continuing venture were the Agricultural Extension Services of: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin Farm Foundation, and the United States Department of Agriculture.



If you are interested in reprints of "How Farm People Accept New Ideas," fill in this coupon and mail to Eli Lilly and Company, Agricultural and Industrial Products Div., Indianapolis 6, Ind.

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crude protein is used in high-energy broiler starting feeds containing added fat. Rations with this level of protein are fed to about five or six weeks of age, sometimes longer. After five or six weeks of age, the crude protein content of high-energy broiler rations may be reduced to 19 or 20%.

As the level of productive energy (Calories) is increased in the ration, the protein level should be increased to maintain approximately the same ratio of energy (Calories) to protein (C/P ratio). Though the C/P ratio is not a standard value under all conditions, it serves as a useful guide in formulating broiler rations.

The calorie-protein ratios suggested by Dr. G. F. Combs for use in broiler ration formulation are (Maryland Agricultural Experiment Station, 1956) shown in Table 3.

Using ground yellow corn as the major grain, a broiler starting ration containing 1,000 productive calories per pound should contain about 23.8% crude protein to give a C/P ratio of 42.

If a broiler ration is properly balanced with respect to all essential nutrients, the energy level will determine to a large extent the amount of feed consumed and thus the efficiency of the ration. As the ratio of energy to protein (C/P) is increased there is an increased deposition of fat in the carcass. Likewise, a decrease in the C/P ratio results in a carcass with less fat.

The quality of the protein used in formulating a broiler feed is extremely important in determining the performance of broilers consuming it. In general, the high protein feedstuffs used to supplement the cereal grains in U.S. broiler rations are hexane-extracted (toasted) soybean oil meal, meat scrap, meat-and-bone scrap and fish meal. Soybean oil meal is the most important of these high protein feedstuffs, by far, in the formulation and production of U.S. broiler rations.

Soybean oil meal is widely used because it contains high quality protein (amino acid balance and availability), is a very uniform product and is readily available at generally economical prices. Research has shown that many of the benefits formerly ascribed to products of animal origin were due to the presence of vitamins of the B-complex in these products and not to protein quality per se. With vitamins of the B-complex being readily available from other sources, the usage of hexane-extracted soybean oil meal in poultry feeds has increased tremendously. Over 95% of the 7.5 million tons of soybean oil meal produced in the U.S. from the 1956 soybean crop were used in rations for poultry and livestock.

In recent years, a lower fiber, higher energy soybean oil meal has been produced which makes practical the formulation of more economical high-energy broiler feeds. This soybean oil meal contains 50% crude protein (minimum) and not more than 3% fiber. Proper use of this product permits the use of larger quantities of high-energy feeds, such as ground corn, because of the use of less of the high protein ingredient to reach the desired protein level in the ration.

Table 4 shows the productive energy values of some common feedstuffs used in formulating broiler rations.

Vitamins and Minerals: The levels of vitamins and minerals given in Table 1 are guides to use in the formulation of broiler starter and finisher feeds.

The level of vitamin A used in commercial rations is about 3,000 International Units per pound of feed. The use of vitamin K in formulation will vary depending on the level of dehydrated alfalfa meal contained in the rations. With 2% dehydrated alfalfa meal in rations, vitamin K additions usually are not made.

Other vitamins commonly used in practical broiler rations are riboflavin, niacin and pantothenic acid.

TABLE 1. Nutrient Requirements Per Pound of Feed for Chickens*

Age of chickens	0-8 Wks.	8-16 Wks.
Total protein, %	20	16
Vitamins:		
Vitamin A activity (U.S.P. units)	1200	1200
Vitamin D (International chick units)	90	90
Thiamine, mg.	0.8	
Riboflavin, mg.	1.3	0.8
Pantothenic acid, mg.	4.2	4.2
Niacin, mg.	12	
Pyridoxine, mg.	1.3	
Biotin, mg.	0.04	
Choline, mg.	600	
Vitamin B_{12}, mg. (tentative)	0.004	0.004
Folacin, mg.	0.25	
Vitamin K_1, mg. (tentative)	0.18	
Minerals:		
Calcium, %	1.0	1.0
Phosphorus, %	0.6	0.6
Salt, %	0.5	0.5
Potassium, %	0.2	0.16
Manganese, mg.	25	
Iodine, mg.	0.5	0.2
Magnesium, mg.	220	

*U.S. National Research Council (Publication 301; 1954).

TABLE 2. Essential Amino Acid Requirements for Chickens*

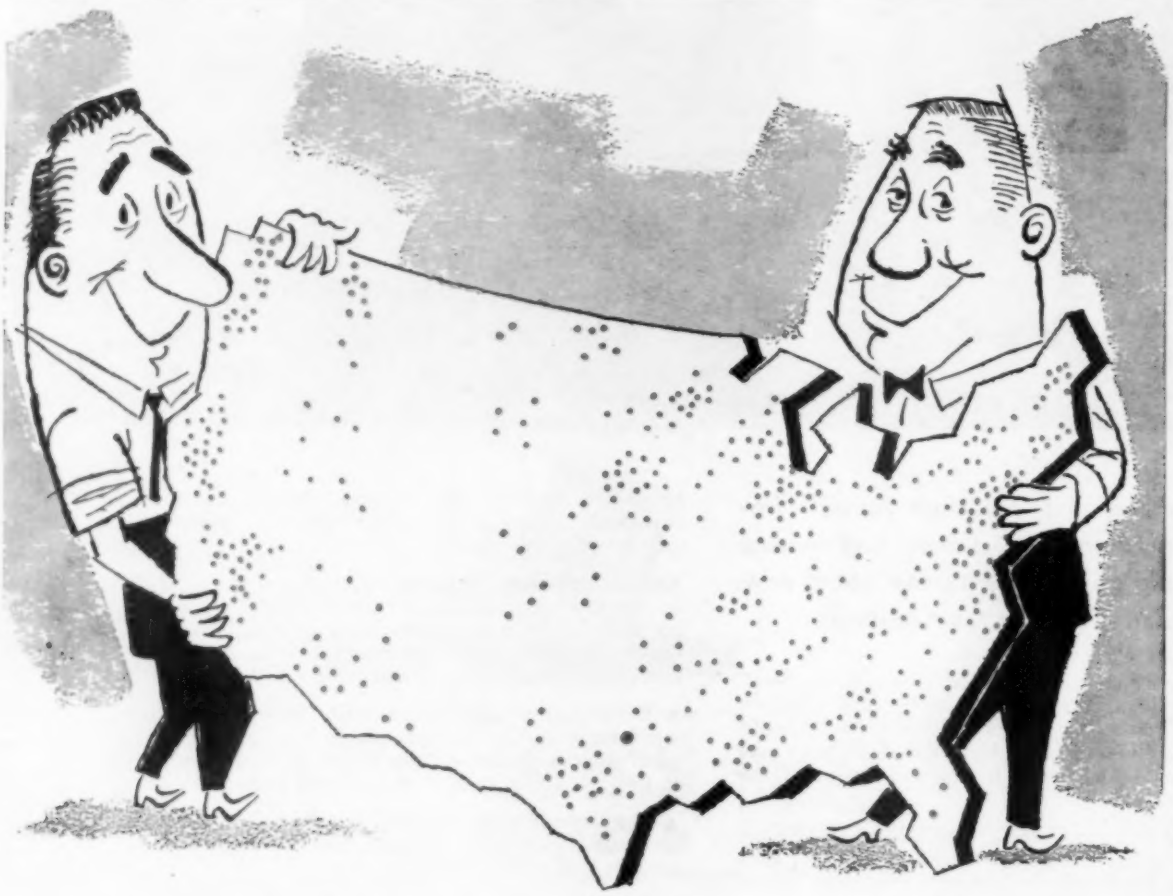
Amino acid	Starting chicks % of ration
Arginine	1.2
Lysine	0.9
Histidine	0.15
Methionine	0.8
or	
Methionine†	0.4‖
Cystine	0.3‖
Tryptophan	0.2
Glycine‡	1.0
Phenylalanine	1.6
or	
Phenylalanine¶	0.9
Tyrosine	0.7
Leucine	1.4
Isoleucine	0.6
Threonine	0.6
Valine	0.8
For protein level	20.0

†Cystine will replace methionine for chicks as long as the ration contains not less than 0.45% methionine.

‡The chick can synthesize glycine but the synthesis does not proceed at a rate sufficient for maximum growth.

¶Tyrosine will replace phenylalanine for chicks as long as the ration contains not less than 0.9% phenylalanine.

*U.S. National Research Council (Publication 301; 1954).



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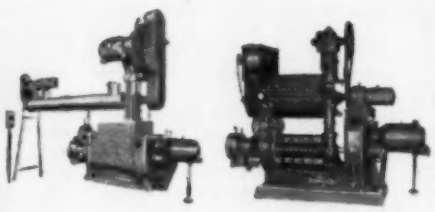

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TABLE 3. Calorie : Protein (C/P) Ratios for Use in Formulation

Ration	Age weeks	Calorie: Protein ratio C/P*
Broiler starter ration ..	0-6	42
Broiler finisher ration ..	6-9	49

*On a total ration basis, C/P ratio = Calories productive energy / Crude protein, %

TABLE 4. Productive Energy Values of Common Feedstuffs for Chickens*

Feedstuffs	Productive energy calories per lb.
Grains:	
Corn, ground	1,145
Kafir	1,078
Milo	1,144
Wheat	1,013
Barley	811
Oats	760
Wheat products:	
Wheat middlings, standard	580
Wheat bran	408
Proteins:	
Corn gluten meal (41% crude protein)	840
Soybean oil meal (50% crude protein)	620
Soybean oil meal (44% crude protein)	570
Meat scrap (55% crude protein)	724
Meat and bone scrap (50% crude protein)	724
Fish meal (60% crude protein)	921
Dried whey	490
Skim milk, dried	525
Alfalfa meal (20% crude protein)	314
Alfalfa meal (17% crude protein)	308
Fat:	
Animal fat	2,900

*Texas Agricultural Experiment Station Bulletin 678; G. S. Fraps, 1946.

Riboflavin is almost universally added since the common feedstuffs are very low in it. Pantothenic acid and niacin are of much more importance in high-energy rations in which cereal by-products, such as middlings and bran, are omitted and to which fats are added.

In general, one or more sources of unidentified growth factors are used in high-energy rations. These result in some stimulation of growth and usually more consistent results. Sources of these factors are condensed fish solubles, dried whey and dried distillers solubles.

Experiments at the Wisconsin Agricultural Experiment Station show that 0.8% phosphorus is required for most rapid early growth, while 0.6% is adequate after four weeks of age. Not less than 0.4% phosphorus should be from inorganic (non-phytin) sources.

Manganese, an important additive in broiler rations, is required to help prevent perosis or slipped tendon.

The level of salt in U.S. broiler rations is often adjusted to 0.3% to avoid excessive water consumption and the possibility of wet litter.

Other Broiler Feed Additives: These include primarily (a) growth promotants and (b) anticoccidials.

Some growth promotants in common use in broiler rations and the average reported growth response from the addition of the proper level are shown in Table 5. (Note: Use only one arsenical.)

Anticoccidials for Prevention and Control of Coccidiosis: (Use only one according to the manufacturer's recommendations.)

Anticoccidial drugs include: Glycamide, Nicarbazin, Sulfaquinoxaline, Megasul, Unistat, Bifuran, Trithiadol.

Although Glycamide is a new drug for coccidiosis prevention and control, it is used widely in U.S. broiler feeds and is very effective. Most broiler feeds contain a drug for the prevention and control of this disease, and the drug is in the feed continuously, except for five days before slaughter when it is eliminated. The latter is a requirement of the Food and Drug Administration of the U.S.

Wormer: For the removal of large round worms (Ascaridia) from broilers, a feed containing 0.2% piperazine base is 90 to 100% effective when fed as the only feed for 24 hours. This feed should be fed at four weeks of age and repeated at seven weeks of age if necessary. Other drugs may be used for this purpose.

Pigmentation: The nutritional and other factors considered thus far affect growth rate, feed efficiency, carcass finish and health. U.S. consumers prefer a broad breasted, plump, ten-

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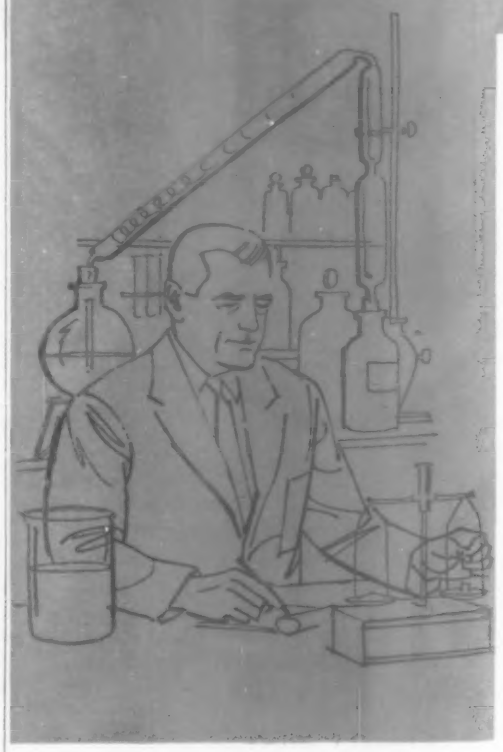

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TABLE 5. Growth Promotants and Average Reported Growth Response

Growth promotant	Level in ration	% increase in growth to 8 or 9 weeks of age
Antibiotics:		
Procaine penicillin	1 to 2 mg. per lb.	3 to 5%
Aureomycin (chlortetracycline)	5 to 7½ mg. per lb.	
Terramycin (oxytetracycline)	5 to 7½ mg. per lb.	
Bacitracin-procaine penicillin combination	3½ mg. per lb.	
Arsenicals:		
3-Nitro-4-hydroxyphenylarsonic acid	0.005%	2 to 6%
Arsanilic acid	0.009%	

der broiler chicken that has quality and proper finish. Our goal in feeding as outlined in this paper is to produce the high quality of bird demanded by U.S. consumers.

The consumers of U.S. chickens have color preferences which vary in different areas so far as carcass color (pigmentation) is concerned. Some prefer a white or slightly pigmented broiler while others prefer a yellow one. In general, the U.S. feed manufacturers depend upon yellow corn, corn gluten meal and high quality dehydrated alfalfa meal as sources of pigmentation factors in broiler feeds. In using these products in ration formulation, their content of nutrients such as productive energy, protein, fiber, vitamins, etc., is considered along with their content of pigmentation factors.

Summary

1. U.S. broiler production has increased 3,377% since 1935, and 1958 is on its way to an all-time-high production record.

2. The consumption of ready-to-cook chicken has almost doubled on a per capita basis in the U.S. from 1935 to 1957. During this period, the U.S. population increased 46 million (127 million, 1935; 173 million, 1957).

3. The goal of commercial U.S. broiler growers has constantly improved and is now 3-8-2.4) a 3-lb. broiler at 8 weeks of age on 2.4 lb. (or less) feed per pound of gain. This goal is being attained by many commercial growers.

4. The application of nutritional knowledge to ration formulation has been a major factor in producing broiler meat economically and in large volume. With proper equipment, one man can grow 30,000 to 40,000 broilers, or 120,000 to 160,000 annually (four broiler crops per year).

5. The C/P ratio in starting and finishing rations should be 42 and 49 respectively, to produce excellent growth, efficient feed conversion and high quality carcass finish. With 1,000 Calories of productive energy per pound of ration, the crude protein levels would be 23.8% and 20% from 0 to 5 weeks and 5 to 9 weeks, respectively.

6. Vitamins and minerals are essential, and requirements are given with recommended modifications based on late research findings.

7. Antibiotics and arsenicals are commonly-used growth promotants.

8. An anticoccidial drug for the control and prevention of coccidiosis is contained in most manufactured U.S. broiler feeds.

9. A wormer feed is used to eliminate round worms from infested broilers.

10. In the U.S., food consumers determine what and how much should be produced as well as the quality and color. These preferences are respected by breeders of broiler chicks as well as by feed manufacturers.

Opinions Vary in Boxcar Inquiry

WINNIPEG—Canada's inquiry into allocation of grain-carrying boxcars moved into Saskatchewan June 24 and brought out record numbers of farmers presenting submissions as varied in their requests as were accepted during the Winnipeg hearings.

Most briefs expressed farmers' apprehension that they might lose the privilege of delivering to the elevator of their choice.

A suggestion by one farmer that a solution to the problem was a return to trading on the Winnipeg Grain Exchange, because the best system farmers ever had was a combination of the wheat board and the grain exchange, was greeted with boos and catcalls.

Before the inquiry moved into Saskatchewan, John Bracken, chairman, indicated that the secret formula used by the Canadian Wheat Board in allocating boxcars had been found unacceptable by most of the organizations presenting briefs. "We feel that the proportion of business each elevator company gets should be determined by competition rather than by arbitrary decision of the wheat board," he said.

Areas of agreement listed by Mr. Bracken included what he termed widespread approval of the Canadian Wheat Board as a selling agency particularly under today's conditions. He also pointed to a nearly unanimous view that car order books be retained, two provisions which the inquiry would recommend be retained.

The Manitoba Federation of Agriculture, the provincial arm of the national federation, at its convention June 25 on a resolution asking for endorsing of the Manitoba Pool brief, substituted another, merely saying the federation favored the principle of farmers being able to deliver grain to the elevators of their choice.

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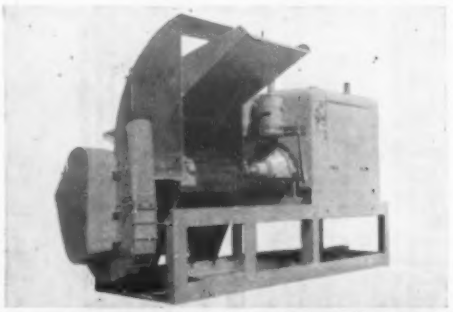

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Are Your Merchandising Lines Paying Their Rent?

By Leo V. Aspinwall
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EDITOR'S NOTE: Feed and farm supply merchants will be interested in the accompanying discussion of the rental value of selling space. Rent may be thought of as a percentage of the sales produced in the space occupied. Whether or not that space is owned or leased, the cost of occupancy must be paid out of gross margins resulting from sales. In fact, lease contracts are often based upon a percentage of sales; as sales increase, so does rent; likewise, when sales decrease, rent goes down unless some sort of minimum fixed rental arrangement is used. The growth of percentage leases in retailing generally emphasizes the need for a closer examination of the influence of occupancy costs on store layout. This article is adapted from material prepared by the Small Business Administration, Washington, D.C. The author is head of the marketing division in the School of Business at the University of Colorado, Boulder.

Customers moving in and out of your front door behave just about as do people on the street. Those who know what they want try to go directly to that item. People with no specific items in mind move from place to place as their interest is caught by goods on display. These two types of traffic are known as destination traffic and shopping traffic.

Destination customers tend to move in a logical, thought-out sequence. Shopping customers, taking a largely random approach, almost always turn to the right after they enter your front door. Destination traffic generally will not drift to the right because of the slower and unpredictable movements of the shoppers. Instead, these customers usually turn left upon entering a store. As a result, shopping traffic tends to circulate through a store in a counter-clockwise direction, while destination traffic moves clockwise. Recognition of this movement provides a key to the layout of goods not only near the door but also within the entire selling space.

Goods with low gross margins and high replacement rates should be located conveniently, say, on a 45° angle to the left of the entrance. This location will afford destination customers immediate access to the staples they buy frequently. It will help them complete their purchases quickly. In contrast, the high gross margin items with low replacement rates should be arranged on the right. When this is done, these goods are seen by the bulk of the shopping traffic; as a result, sales of these items tend to increase.

RENTAL VALUE OF SELLING SPACE: Because the space nearest the traffic flow offers the greatest exposure to customers, it has the greatest sales potential. For this reason, the front part of your store is the most valuable. Towards the rear,

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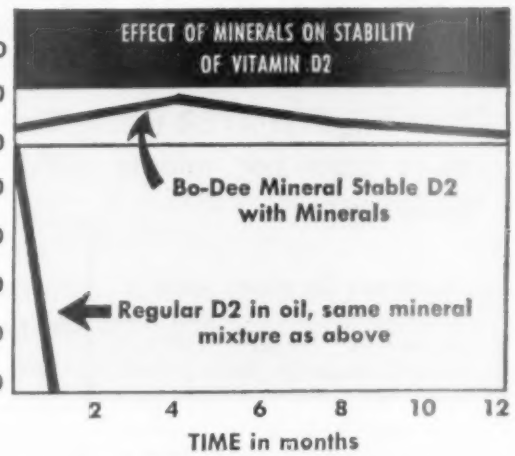

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values decrease. These relationships may be expressed in mathematical terms by the so-called "4-3-2-1 rule," or by the "average rate of value decline," both of which are used in analyzing selling-space values.

• **The 4-3-2-1 Rule.** Suppose, for instance, that you had a simple, middle-of-the-block, one-story store. You have a 50-foot frontage and a depth of 100 feet. The area within the building contains 5,000 square feet each of which must earn its share. The 4-3-2-1 system is a straight-line approach to measuring the decline in space value as the distance from the front of the store increases. It is used as a rough approximation of the relationships between the values of the various spaces occupied. The application is explained by diagram 1.

It points out the need (1) for larger sales in the front part of the store in order to support the higher value of that space, and (2) for goods to be arranged so that shopping traffic moving right will be exposed to high gross margin goods while destination traffic moving left will quickly find low gross margin goods.

Many small retailers believe that placing staple items at the rear of the store will cause customers to pass displays of high-margin goods from which they will make impulse purchases. This is sometimes true (for instance, in certain types of firms such as grocery stores where customers typically purchase a number of items at one time), but it is not an infallible rule. Some customers with routine needs resent being obliged to go the full length of a store to get what they want. In fact they may refuse to do so and simply seek another store where these goods are up front.

To be sure, physical elements such as pillars within the store space and the placement of entrances do affect the arrangement of goods. They cause some stores to present what may seem to be a contradiction of these general rules. Nevertheless, alert merchants try to correct undesirable elements so that their stores do follow the normal pattern as much as possible.

• **Average Rate of Value Decline.** While the 4-3-2-1 rule is useful as a rough technique, it lacks accuracy. Therefore, if greater precision in measuring space values is desired, then the so-called "average rate of value decline" method should be used.

This approach, being technical, requires specialized knowledge which most retailers have to hire. As a result, it is often more costly than the value of its findings to very small concerns. However, retail stores having more than 1,500 square feet of floor space (30 by 50 feet, for example), should be able to absorb the cost of such an analysis and still make money by rearranging goods according to the findings.

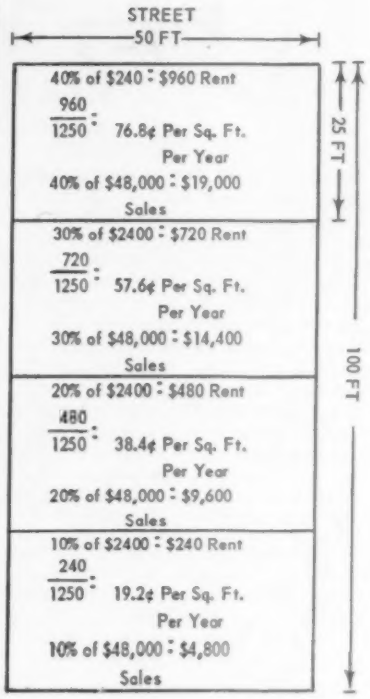
The decline in space value may be presented graphically by what is called an "(r) Factor Curve." It is based upon the fact that, in practice, space values don't drop off at an even rate toward the rear of a store. They decline more rapidly in front than they do in back. The "Curve" is figured out by a statistical analysis of actual customer traffic. From this analysis, a curved line is plotted on a graph. This line shows the change in space values from one part of a building to another. Once the chart is completed, the value of any given location in a store can, as it were, be "looked up."

Diagram 2 shows what the (r) Factor Curve would look like for the same store illustrated previously in diagram 1. Line "A B" represents the 100-foot depth of the store divided into 20 bands of 5 ft. each. All the area from the front of the store back to the line called "average rent" is worth more than the average rent (48¢ per square foot per year). All the space from the "average rent" line back to the rear of the store is worth less than average.

Comparing the values in diagram 1 with those in diagram 2 will highlight the short-comings of the 4-3-2-1 system. For example, the space value at line "X" by the 4-3-2-1 system is around 77¢ while the (r) Factor Curve method puts it at $1.43. At line "Y" the value by the 4-3-2-1 system is about 38¢ in contrast to the (r) Factor Curve figure of only 18½¢. Back at line "Z" the 4-3-2-1 system puts the value at around 19¢ as compared to a (r) Factor Curve value of 8¢.

DIAGRAM 1

4 - 3 - 2 - 1 RULE

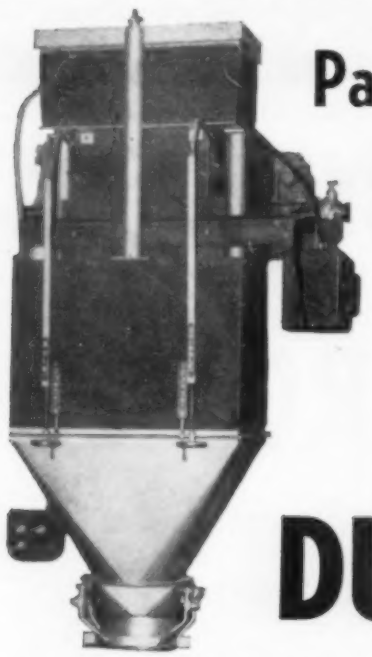


THE RENT contracted by lease is $2,400 per year. Therefore 5,000 square feet divided into $2,400 = 48¢ per year. This is the average rent per square foot per year for the whole store. Under the 4-3-2-1 rule, 40% of the total rent is assigned to the front ¼ of the space; 30% of the total rent is assigned to the second ¼ of the space; 20% of the total rent is assigned to the third ¼ of the space, and 10% is assigned to the rear ¼ of the space. Typical rent or occupancy cost for a drug store is 5% of sales; so that $2,400 = 5% of sales, and 1% = $480, and 100% = $48,000 total sales.

COMPUTING NEEDED FLOOR SPACE: The (r) Factor Curve is also to provide figures on the amount of space certain goods should occupy. Suppose, for example, that the store illustrated is a drugstore, and that a tobacco department location is at the left inside the front entrance. How much space should be allotted to it?

Tobacco sales last year totaled, say, $8,640. A sales rate of $30 per square foot per year was reported by National Association of Retail Druggists in studies for this size store. Thus $8,640 ÷ $30 will indicate the space which should be needed to pro-

(Turn to PAYING THE RENT, page 82)



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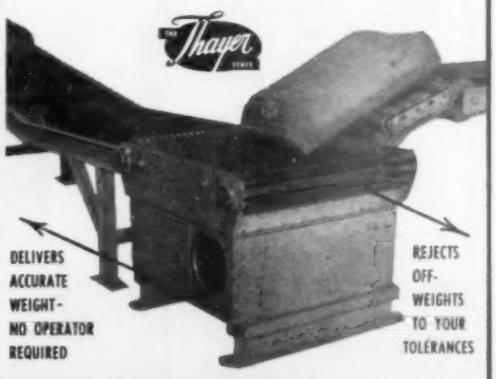
A Thayer Checkweigher in your conveyor system **rejects off-weight packages to your tolerances.** An invaluable inspection tool that never closes its eyes on filling scales or operators. Thayer Plate Leverage System is **guaranteed accurate** for the life of the scale. Send for full information on Checkweighing to Save Feed and Keep Customers.



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The First Fermentation Product with a *Guaranteed Potency*

Developed and Produced Primarily as a *Growth Stimulant*

Ray Ewing ATERRIMIN

Guaranteed potency of 20,000 units for less than 50¢!

Ray Ewing ATERRIMIN—The product with a purpose. The first fermentation product with a guaranteed potency developed and produced primarily as a growth stimulant.

Ray Ewing ATERRIMIN—The growth stimulant which is non-toxic and has proven stability.

Ray Ewing ATERRIMIN—Has given excellent growth response even in the absence of fish solubles, dried whey or other growth additives in rations.

Ray Ewing ATERRIMIN—Supplies low cost chick-growth stimulation at less than 50¢ per ton of feed.

Ray Ewing ATERRIMIN—The growth stimulant which is compatible with all common antibiotics tested in feeds.

Ray Ewing ATERRIMIN—Guaranteed potency easily determined by approved microbiological assay for aterrimin activity.

Ray Ewing ATERRIMIN—Produced exceptional results in chicks, broilers and turkey poults.

Ray Ewing ATERRIMIN—Now available through 5 major Ray Ewing premixing plants and the Ray Ewing Representative serving your area.

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PLANTS: PASADENA, CALIF. • BOONE, IOWA • FT. WORTH, TEXAS • COUNCIL BLUFFS, IOWA • LANCASTER, PA.

CONVENTION CALENDAR

July 22-25 — American Poultry & Hatchery Federation; Cleveland Auditorium (Ohio); convention mgr., Ed G. Gray, 521 E. 63rd St., Kansas City 10, Mo.

July 25—Ohio Sheep Day; Ohio Agricultural Experiment Station, Wooster, Ohio; chm., Dr. L. L. Rummell.

July 27-28—New Mexico Grain & Feed Dealers Assn.; Hotel Clovis, Clovis, N.M.; sec., Parley Jensen, P.O. Box 616, Albuquerque, New Mexico.

July 27-Aug. 2—Executive Development in Management School; University of Georgia, Athens, Ga.; Harold E. Ford, secretary, Southeastern Poultry & Egg Assn., 235 Ponce de Leon Ave., Decatur, Ga.

Aug. 4-5—Feed Microscopy Short Course, Texas Agricultural Experiment Station, College Station, Texas; sec., E. E. Brown, Assistant State Chemist, Texas Agricultural Experiment Station.

Aug. 5-6 — Mid-South Soybean & Grain Shippers Assn.; Hotel Peabody, Memphis, Tenn.; sec., Paul C. Hughes, P.O. Box 692, Blytheville, Ark.

Aug. 8-9 — North Carolina Feed Manufacturers Assn.; Grove Park Inn, Asheville, N.C.; sec., A. W. Koon, Box 1664, Spartanburg, S.C.

Aug. 12-13—Mutual Millers & Feed Dealers Assn.; Hotel Jamestown, Jamestown, N.Y.; sec., Mrs. G. A. Bentley, 41 Chautauqua Ave., Jamestown, N.Y.

Aug. 18 — National Soybean Processors Assn.; Hotel Fort Des Moines, Des Moines, Iowa; sec., R. G. Houghtlin, 3818 Board of Trade Bldg., Chicago 4, Ill.

August 18-19—Wisconsin Nutrition School; University of Wisconsin, Madison, Wis.; chm., Dr. R. H. Grummer, Department of Animal Husbandry.

Aug. 18-19—Kentucky Feed Conference, sponsored by Kentucky Feed & Grain Assn. and University of Kentucky; Campbell House, Lexington, Ky.; sec., Fred H. Schardt, Box 1914, Louisville 1, Ky.

Aug. 19-20 — American Soybean Assn.; Hotel Fort Des Moines, Des Moines, Iowa; sec., George M. Strayer, Hudson, Iowa.

Aug. 22—Purdue Swine Day; Purdue University, Lafayette, Ind.; chm., J. H. Conrad, Animal Husbandry Department.

Aug. 25-28—Georgia Poultry Institute; Rock Eagle 4-H Club Center, Eatonton, Ga.; chm., J. H. Massey, Extension Poultryman, University of Georgia, Athens, Ga.

Sept. 5—Ohio Swine Day; Ohio Agricultural Experiment Station, Wooster, Ohio; chm., Dr. L. L. Rummell.

Sept. 5—Missouri Swine Day; University of Missouri, Columbia; Dr. Leland Tribble, Animal Husbandry Dept.

Sept. 7-8—Grain & Feed Dealers National Assn., Sheraton-Jefferson Hotel, St. Louis, Mo.; chm., Alvin E. Oliver, 600 Folger Bldg., Washington 5, D.C.

Sept. 7-9—Louisiana Poultry Improvement Assn.; Jung Hotel, New Orleans, La.; sec., Clyde Ingram, University Station, Baton Rouge, La.

Sept. 8-9—Minnesota Animal Nutrition and Health Short Course; University of Minnesota, St. Paul; chm., Dr. C. L. Cole, Dairy Husbandry Dept.

Sept. 10-11 — Maryland Poultry Servicemen's Conference; University of Maryland, College Park, Md.; chm., W. R. Rice, Poultry Department, University of Maryland.

Sept. 12 — Iowa Conference for Feed Salesmen and Dealers (formerly Iowa Nutrition Conference) Iowa State College, Ames, Iowa; chm., Dr. Walter Woods, Animal Husbandry Department.

Sept. 17-19—National Feed Ingredients Assn., Congress Hotel, Chicago, Ill.; sec., Peter W. Janss, 212 Equitable Bldg., Des Moines, Iowa.

Sept. 18-19 — Arkansas Formula Feed Conference; University of Arkansas, Fayetteville, Ark.; chm., Prof. E. L. Stephenson, Department of Animal Industry and Veterinary Science.

Sept. 21-30—World's Poultry Congress; Mexico City, Mexico; sec., Edward Karpoff, Agricultural Marketing Service, USDA, Washington 25, D.C.

Sept. 23-24—Iowa Poultry Hatchery Assn.; Veterans Memorial Auditorium, Des Moines, Iowa; sec., LeRoy Kruskop, 409½ Douglas Ave., Ames, Iowa.

Sept. 25-27—Pennsylvania Millers & Feed Dealers Assn.; Penn-Sheraton Hotel, Pittsburgh, Pa.; sec., Richard I. Ammon, P.O. Box 329, Ephrata, Pa.

Oct. 7-9 — Northeastern Poultry Producers Council Poultry Exposition and Convention; Farm Show Bldg., Harrisburg, Pa.; chm., Alfred Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

Oct. 8-10—Texas Nutrition Conference; Texas Agricultural and Mechanical College, College Station, Texas; chm., J. R. Couch, Poultry Science Dept.

Oct. 9 — Vermont Feed Dealers & Manufacturers Assn.; Agricultural Science Bldg., University of Vermont, Burlington, Vt.; sec., D. C. Henderson, Poultry Department.

Oct. 10-11—Arizona Grain and Seed Assn.; Hotel Westward Ho, Phoenix, Ariz.; sec., Hayden C. Hayden, Box 156, Tempe, Ariz.

Oct. 12-14—Kentucky Poultry Improvement Assn., and Kentucky Poultry Federation; Kenlake Hotel, Hardin, Kentucky; sec., John W. Tuttle, 730 Rose Street, Lexington, Ky.

Oct. 14-15—Virginia State Poultry Federation; Natural Bridge Hotel, Natural Bridge, Va.; sec., P. Paul Williams, 615 E. Franklin St., Richmond, Va.

Oct. 14-16—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; sec., L. E. Bopst, University of Maryland, College Park, Md.

Oct. 16-17 — Oklahoma Formula Feed Conference, Oklahoma State University, Stillwater, Okla.; chm., Dr. Rollin H. Thayer, Poultry Science Dept.

Oct. 20-21—California Animal Industry Conference, Fresno Memorial Auditorium, Fresno, Cal.; sponsored by University of California and California Hay, Grain & Feed Dealers Assn.; sec., John Gilmore, 1400 10th St., Sacramento, Cal.

Oct. 23-24 — Iowa Seed Dealers Assn.; Hotel Fort Des Moines, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines, Iowa.

Oct. 23-25—Nutrition Conference, Alabama Feed Assn.; Alabama Polytechnic Institute, Auburn, Ala.; chm., Merlin T. Bryant, Brundidge Milling Co., North Main St., Brundidge, Ala.

Oct. 31-Nov. 3 — Florida Nutrition

CALENDAR FOR 1958-59

JULY

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ECCENTRIC LOCK instant screen change

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NOW FOR THE FIRST TIME, screens up to ¼" thick can be changed in seconds, *while the mill is running!* Simply raise the handle, remove one screen, and insert another . . . without exposure to whirling hammers. When the handle is pushed down, the screen automatically moves into exact position and is securely clamped in place. *Nothing else to do!*

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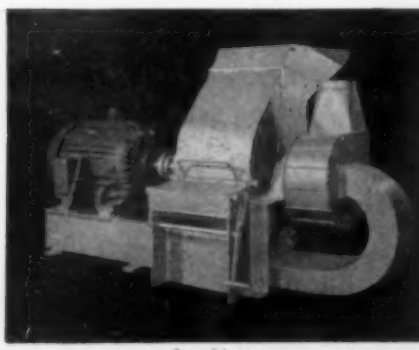
- Schutte Pat. adjustable hammers feature 10 working surfaces.
- Extra large feed opening handles bulky materials, too.
- Separate motor driven fan (optional) maintains peak capacity.

Schutte Series 10 Heavy Duty Hammer Mills are available in direct or belt driven models from 30 hp to 125 hp. Get full details by writing for free literature today.



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- Bran and Shorts
- Tankage
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Vol. V ★ A SERIES FOR SCIENTISTS AND EXECUTIVES OF THE FEED MANUFACTURING INDUSTRY ★ No. 7

Growth of Ducklings Increased by Use of Methionine in Ration

Recent studies show that ducklings make better growth when methionine is added to a ration containing soybean protein and added choline. In these studies, the birds required an adequate level of cystine in their ration, in order to show growth improvement from methionine.

Need Similar to Chicks

Simultaneous addition of both these sulfur-bearing amino acids, choline and methionine, produced growth equal to that with a higher level of methionine alone. Like chicks and turkey poults, however, the ducks were able to convert methionine into cystine, but could not use cystine to replace methionine. Birds with an adequate level of methionine in their ration were free of perosis. It was found that excellent growth of ducklings was obtained when the growing ration contained 0.3% cystine and 0.1% methionine.

Vitamin E Affects Mineral Metabolism

Research with animals fed a diet lacking in vitamin E has indicated that a deficiency of this vitamin shows up in malfunctioning mineral metabolism. The earliest sign of deficiency is an electrolyte imbalance. Liver extracts from animals lacking vitamin E showed only a fraction of normal ability to synthesize ascorbic acid (vitamin C). Normal synthesis of this essential vitamin was restored by the presence of vitamin E, and also by manganese or cobalt. This indicates that there is an interrelationship of the metabolism of vitamin C, vitamin E and certain minerals.

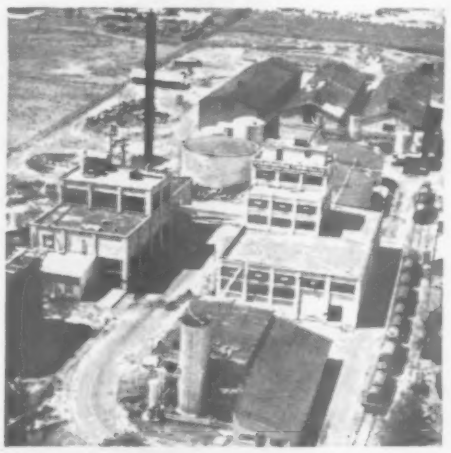
U.S.I. Is Now Producing MOREA® Pre-Mix in New Plant at Anaheim, California

Mixer-distributors of MOREA liquid feed on the West Coast and adjacent states now have a new and convenient source of supply of MOREA pre-mix. Recently-completed production facilities are now in operation at the U.S.I. plant at Anaheim, California. Located near extensive cattle and sheep feeding areas and intensive dairy farming sections, this new plant is equipped to serve a large and growing market for MOREA liquid feed.

Modern Liquid Feed

MOREA pre-mix, made at this modern plant, is shipped to mixer-distributors who combine it with molasses and supply the completed MOREA liquid feed supplement to cattlemen, dairy farmers and sheep producers. Designed especially for ruminant animals, MOREA liquid feed enables them to produce meat or milk at very low cost, on rations containing large amounts of roughage and relatively small amounts of grain.

This economical liquid supplement, rich in available nitrogen, can be fed free-choice from bunks or tanks, or can be added to grain or roughage in a controlled feeding program. Cattle and lambs, on a MOREA liquid feed program, produce high-grade carcasses with well-marbled meat and less wasty cover fat, usually within a shorter feeding period. Dairy cows, on a MOREA feeding program, produce more milk and butterfat at low feed cost. Since all handling and mixing is done with pumps and tanks, mixer-distributors can handle a large volume of business at low labor cost.



Pre-mix for MOREA liquid feed is now made in this Anaheim, Cal., plant of U.S.I., convenient to mixer-distributors in Pacific and Mountain states.

Contains a Hydrogen Donor

Containing urea nitrogen, phosphoric acid, trace minerals, molasses and ethanol, MOREA liquid feed is produced under patents assuring feeders a standardized, high-quality product. Major reason for the outstanding results with MOREA feed is its ethanol content. Ethanol is the *hydrogen donor* that improves capacity and quality of rumen digestion remarkably.

Certain territories for qualified mixer-distributors are still available. For information, write U.S.I.

Worthwhile Reading

Don't miss the article entitled "The Role of Ethyl Alcohol in Animal Nutrition," appearing in the July issues of Eastern Feed Merchant and Western Feed and Seed. It traces the long history of using small amounts of this high caloric value product in food and feed, and points out the vital importance of proper quantities of a *hydrogen donor*, such as ethyl alcohol, in the modern feeding of ruminants. The outstanding value of MOREA liquid feed supplement for cattle and sheep is shown to be based in large degree on ethanol, or ethyl alcohol.

FEED PRODUCTS OF U.S.I.

- U.S.I. ANTIBIOTIC FEED SUPPLEMENTS (bacitracin and procaine penicillin)
- U.S.I. VITAMIN B_{12} SUPPLEMENTS
- U.S.I. MENADIONE PRODUCTS (vitamin K_3)
- U.S.I. BHT PRODUCTS
- U.S.I. CUSTOM MIXES
- U.S.I. RIBOFLAVIN PRODUCTS
- U.S.I. CHOLINE CHLORIDE (25% dry or 70% solution)
- MOREA® PREMIX
- U.S.I. CALCIUM PANTOTHENATE Products
- U.S.I. DL-METHIONINE (feed grade)
- U.S.I. PERMADRY (sealed-in vitamin A)
- U.S.I. VITAMIN D_3 (stabilized)
- U.S.I. NIACIN
- U.S.I. VITAMIN E PRODUCTS

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Conference; cruise from Miami to Nassau, British West Indies; chm., J. P. Feaster, Department of Animal Husbandry and Nutrition, University of Florida, Gainesville, Fla.

Nov. 2-5—National Renderers Assn., Hotel Statler, Washington, D.C., sec., Miss Jamie C. Fox, 30 N. LaSalle St., Chicago 2, Ill.

Nov. 7—Washington Animal Industry Conference; Lower Columbia Junior College, Longview, Wash.; sponsored by State College of Washington, Lower Columbia Junior College and Washington State Feed Assn.; assn. mgr., J. G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Nov. 12-14—Midwest Feed Production School; American Royal Bldg., Kansas City; sponsored by Midwest Feed Manufacturers Assn.; exec. vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Nov. 13-14—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Prof. Charles Chance, Wing Hall, Cornell University, Ithaca, N.Y.

Nov. 14—Midwest Custom Milling School; American Royal Bldg., Kansas City; sponsored by Midwest Feed Manufacturers Assn., exec. vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Nov. 23-25—Western Grain & Feed Assn.; Hotel Fort Des Moines, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines, Iowa.

Nov. 30-Dec. 1—Tennessee Feed Manufacturers Assn.; Noel Hotel, Nashville, Tenn.; sec., Charles H. Warfield, 602 American Trust Bldg., Nashville 3, Tenn.

1959

January 24-26—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis 4, Ind.

Jan. 26-28—Southeastern Poultry & Egg Assn., Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Jan. 28-30—American Dehydrators Assn., Shamrock-Hilton Hotel, Houston; exec. vice pres., Joseph Chrisman, Board of Trade Bldg., Kansas City 5, Mo.

Jan. 29-30—Oregon Animal Industry Conference; Oregon State College, Corvallis; sponsored by Oregon State College and Oregon Feed & Seed Dealers Assn.; sec., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Feb. 6-7—Minnesota Turkey Growers Assn.; Leamington Hotel, Minneapolis; sec., A. E. Eisenmenger, 2200 University Ave., St. Paul, Minn.

Feb. 9-10—Montana Nutrition Conference; Montana State College, Bozeman, Mont.; chm., Dr. O. O. Thomas, Animal Industry Dept.

Feb. 12-13 — Washington State Feed Assn.; Leopold Hotel, Bellingham; mgr., J. G. Wilson, 814 Second Ave. Bldg., Seattle, Wash.

Feb. 13-15—Institute of American Poultry Industries' Fact Finding Conference; Municipal Auditorium, Kansas City, Mo.; Institute of American Poultry Industries, 59 E. Madison, Chicago 2, Ill.

Feb. 22-24—Colorado Grain, Mill & Feed Dealers Assn.; Shirley Savoy Hotel, Denver, Colo.; sec., R. B. Kelley, 714 Cooper Bldg., Denver 2, Colo.

Feb. 23-26 — Colorado Livestock Days; Colorado State University, Ft. Collins, Colo.; chm., Dr. Lamar Esplin.

Feb. 24-25—Virginia Feed and Nutrition Conference; Hotel Roanoke, Roanoke, Va.; co-chm., Wm. G. Ritchie, J. S. Ritchie & Sons, Petersburg, Va., and Paul M. Reaves, professor Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

March 1-3 — Ohio Grain & Feed Dealers Assn., Inc.; Neil House, Columbus, Ohio; sec., G. E. O'Brien, 710 N. Ohio Street, Greenville, Ohio.

March 11-13—Midwest Feed Manufacturers Assn.; Muehlebach Hotel, Kansas City, Mo.; exec. vice president, Lloyd S. Larson, 20 W. Ninth Street Bldg., Kansas City 5, Mo.

March 19-20—Oregon Feed & Seed Dealers Association; Multnomah Hotel, Portland; sec., Russ Hays, 702 Lewis Bldg., Portland 4, Ore.

April 30-May 2—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., O. E. Case, 901 Wiley Bldg., Hutchinson, Kansas.

May 8-10 — Grain Processing Machinery Manufacturers Assn.; Chicago; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

May 11-13—American Feed Manufacturers Assn. Convention and National Feed Industry Show; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

June 7-9—Indiana Grain & Feed Dealers Association; Sheraton Hotel, French Lick, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis, Ind.

June 7-9—Eastern Federation of Feed Merchants, Pocano Manor Inn, Pocano Manor, Pa.; sec., Austin W. Carpenter, Sherburne, N.Y.

West Coast Seeks Milo

WASHINGTON—U.S. Department of Agriculture officials on the West Coast are pressuring for the movement of large quantities of milo to the Coast.

Such a movement would obviously be a storage deal, observers here feel, since it is unlikely that any substantial export business would be available under the generous corn export subsidy, which the USDA has been steadily boosting during the past few weeks.

COMPLETES ADDITION

HILLSBORO, N.D.—A metal and concrete building has been completed at the Taft Elevator here. The $8,000 addition will give 30,000 bu. more of storage to the firm. Present capacity is 95,000 bu.

THE MAN WITH THE MULTIWALL PLAN

UNION PACKAGING SPECIALIST HENRY SCOTT

simplifies packer's inventory –trims costs by $42,000

"How can we get more out of our Multiwall dollars?"

The question, put by a Southern packer to Union Packaging Specialist Henry Scott, led to a complete analysis of the company's bagging operation. The analysis in turn produced three important recommendations. And $42,000 annual savings!

Working through Union's 5-Star Packaging Efficiency Plan, Scott reduced the size of one bag. The shorter Multiwall gives firmer packing and neater stacking. Further package engineering enabled the company to reduce its range of Multiwall bag styles and sizes by 30 per cent!

Union's Art Department also created a family of high-recognition designs for the firm's existing products. And finally, a brand new design which will help launch 400,000 tons of new product to be marketed this year.

Perhaps Union's 5-Star Plan can help unearth a money-saving idea for you. Perhaps several. Worth looking into, wouldn't you say?

Union Multiwall Recommendations are based on this 5-Star Packaging Efficiency Plan

- DESIGN
- EQUIPMENT
- CONSTRUCTION
- SPECIFICATION CONTROL
- PLANT SURVEY

Better Multiwall performance through better planning

union camp

UNION'S PACKAGE ENGINEERING DEPARTMENT will study your Multiwall bagging methods and equipment and make appropriate recommendations, regardless of the brand of Multiwalls you are now using.

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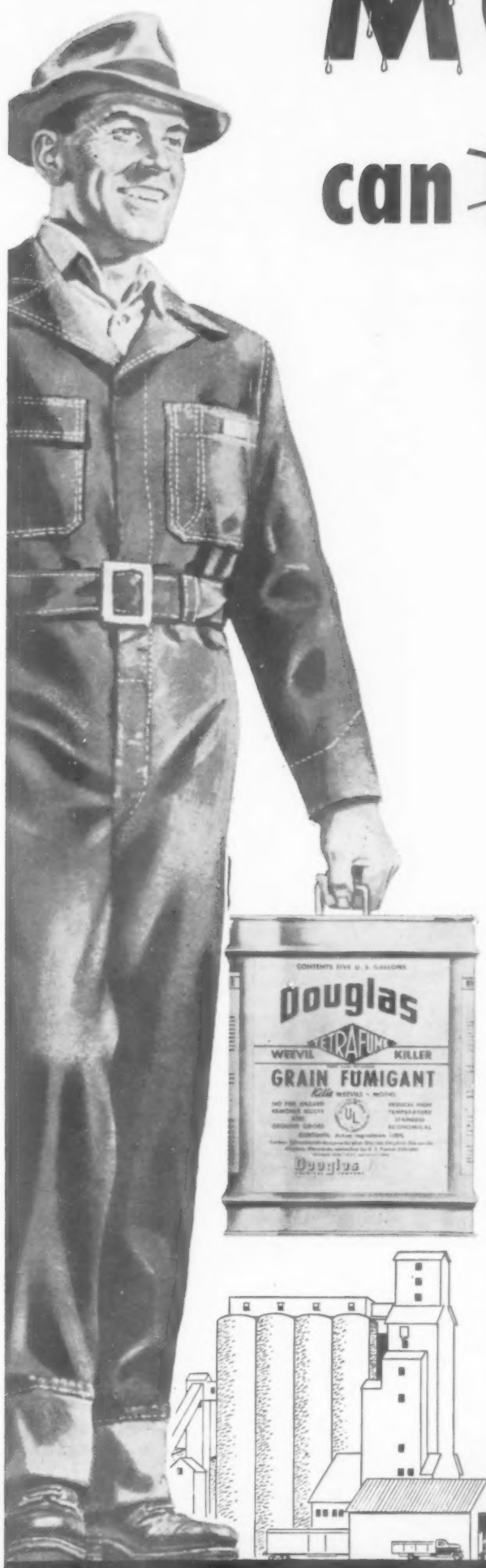

Why take a chance on moisture reducing your profits when you know

GRAIN IN TOP CONDITION WILL BRING THE HIGHEST PRICES!

TETRAFUME is the overwhelming choice of elevator operators for conditioning and protecting elevator stored grain . . . ALSO for conditioning grain in transit.

TETRAFUME will help reduce moisture content by balancing the moisture content in the grain. Because TETRAFUME is heavier than air, it displaces moisture laden air. Then when the TETRAFUME evaporates, it surrounds the grain with dry vapor. In this way, TETRAFUME will help the grain shed some of its moisture.

A LITTLE GOES A LONG WAY—4 gallons of TETRAFUME will completely treat a whole boxcar full of grain. For elevator, apply 2 gallons per 1,000 bushels of grain.

Grain must be turned from 48 to 72 hours after applying TETRAFUME.

TETRAFUME will do 4 BIG JOBS for your grain in TRANSIT and STORAGE:

1. **HELP** reduce moisture content of grain!
2. **HELP** eliminate musty and ground odors!
3. **HELP** reduce temperature of grain!
4. **KILL** all stages of insect life.

Order Now **... Call, wire or write today!**

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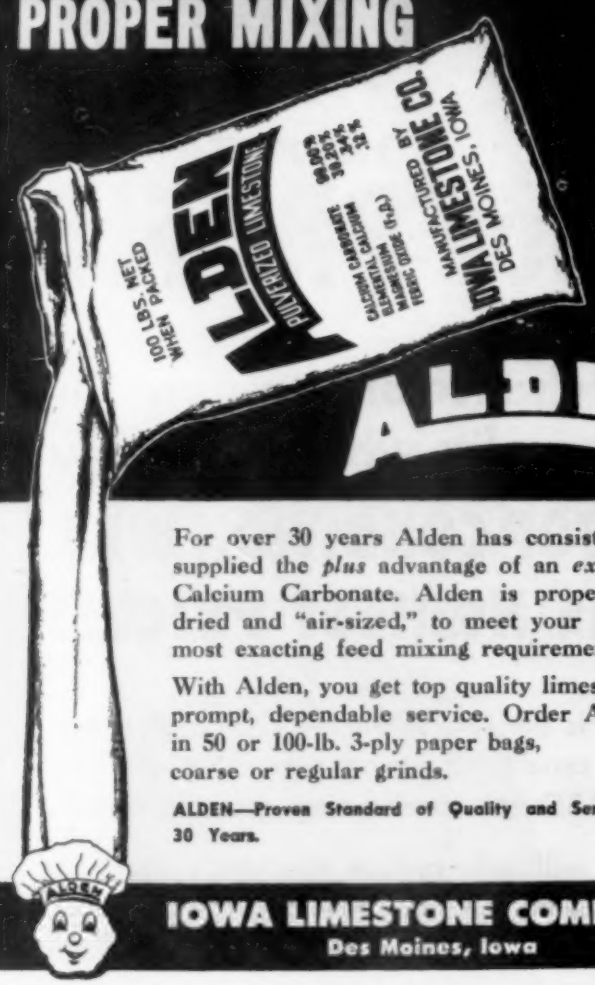

For over 30 years Alden has consistently supplied the *plus* advantage of an *extra pure* Calcium Carbonate. Alden is properly ground, dried and "air-sized," to meet your most exacting feed mixing requirements.

With Alden, you get top quality limestone *plus* prompt, dependable service. Order Alden in 50 or 100-lb. 3-ply paper bags, coarse or regular grinds.

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IOWA LIMESTONE COMPANY
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★ MEAT SCRAPS ★ WHEY POWDER
H. E. HARDY & CO. 912 MIDLAND BANK BLDG., MINNEAPOLIS, MINN.

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Write Us for Samples and Prices
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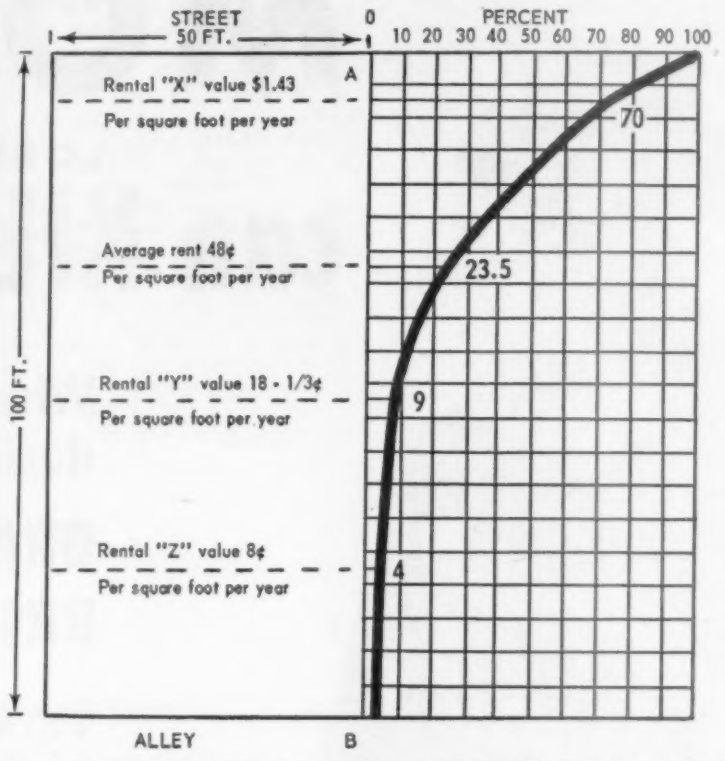
DIAGRAM 2

DIAGRAM OF RENT CALCULATIONS BY MEANS OF (r) FACTOR CURVE
CENTER OF CITY BLOCK LOCATION. SPACE ANALYSIS
USING .80 AS THE COMPUTED RATE OF VALUE DECLINE.



AVERAGE RENT of 5,000 sq. ft. at $2,400 per year contractual rent equals 2,400 ÷ 5,000 or 48¢ per square foot per year. Value of curve is read at each of the 21 horizontal subdivisions from A to B. Sum of all these values (493.5) is divided by the total number of readings (21) to yield average curve value (23.5). Line drawn from 23.5 point on curve to floor plan of store shows location of average rent of 48¢ per square foot per year.

PAYING THE RENT

(Continued from page 76)

duce this sales volume: 288 sq. ft. Note that space is computed to the center of the aisle serving the department.

A 6-ft. aisle serves the department, and hence, 3 ft. of aisle space must be paid for. Then there is a case containing some of the stock which is 24 in. wide. To this must be added a 2-ft. aisle for clerks, and an 18-in. wall case. The total is 8½ ft. Thus, 288 square feet divided by 8.5 gives a front dimension for the department of 34 feet.

Occupancy in this case costs 5% of sales, and therefore, the amount of rent allowable for this department will be $8,640 x 5% or $4.32. Then, if 288 square feet is divided into the allowable rent, the rate per square foot per year can be calculated: 432 ÷ 288 = $1.50 per square foot per year which can be paid for space to accommodate this department. At this point, the (r) Factor Curve can provide the means of locating an area that has a value of $1.50 per square foot per year—in the neighborhood of the $1.43 line on diagram 2.

If this tobacco department actually filled 500 sq. ft., then the sales rate would be only $17.28 per square foot per year. This would be far below the association's standard figure of $30. Moreover, the occupancy cost of 5% of the $8,640 sales was only $432 per year. To occupy 500 square feet of space worth $1.50 per square foot per year would cost $750, almost twice what is reasonable on that sales volume.

Such calculations provide a useful way of making sure that your merchandise lines are paying their rent. It is worthwhile to review your own operations periodically to see that the goods are arranged so as to support the value of the space they occupy.

For additional reading, the following selected books contain material on layout. They are representative of other good volumes which the present format precludes mentioning. No slight is intended toward authors whose works are not included.

Principles of Retailing by C. W. Barker and I. D. Anderson. McGraw-Hill Book Company, 330 W. 42nd Street, New York 36, New York. 1941. $5.50.

How to Establish and Operate a Retail Store by O. P. Robinson and K. B. Haas. Prentice-Hall, Inc., Englewood Cliffs, New Jersey. 1952. $5.00.

Store Organization and Operation, 2nd Edition, by O. P. Robinson, J. G. Robinson, and M. Matthews. Prentice-Hall, Inc., Englewood Cliffs, New Jersey. 1957. $6.75.

Retailing: Principles and Methods, by D. J. Duncan and Charles F. Phillips. Richard D. Irwin, Inc., 1818 Ridge Road, Homewood, Illinois. 1955. $7.20.

RANGER'S Bulk Automatic Auger Feeder
22 to 660 Lids. Will Handle
from 88 to 3,000 hogs.
Available in all sizes.
Write or call for information
RANGER EQUIPMENT
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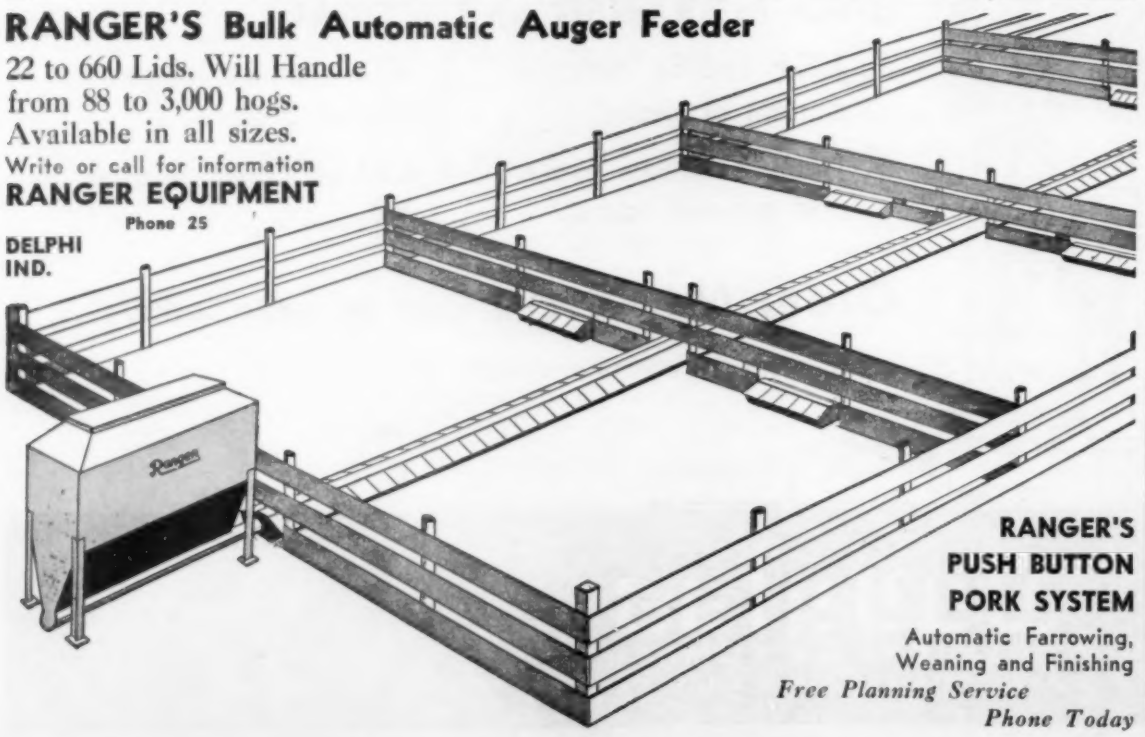

RANGER'S PUSH BUTTON PORK SYSTEM
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Purina Research men study the effect of heat on caged hens. This is one of the many observations used to make sure Purina Chows will be right in any climate.

Why Purina Research peels its weather eye

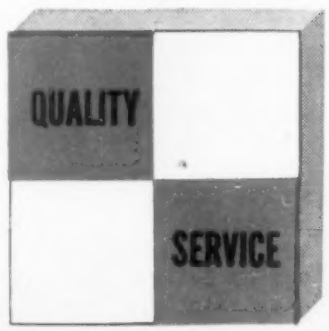
Keeping the weather eye peeled is an important step in developing and manufacturing modern feeds for livestock and poultry. Scientists who work out formulas must be sure their feeds will perform efficiently in different climates . . . or make certain they are adjusted to deliver top results under varying local conditions.

In today's feeds, with new ingredients, vitamins, antibiotics, trace minerals . . . and sometimes medicinals . . . the importance of such watchfulness is multiplied many fold.

Purina Research keeps its weather eye peeled by testing Purina Chows on research farms, located to put Chows on trial from the pine-crowned hills of the North to the palm-fringed plains of the South . . . from the Eastern Shore to the Pacific Slope.

Some Chows gain approval for national use. Others are adjusted to fit local grains and climates. A formula never goes into the Checkerboard Bag until it has proved itself under practical farm conditions.

The peeled weather eye is one of the reasons why Purina Dealers find that one sale makes a steady customer. It is one factor that makes Purina Chows America's most popular formula feeds for livestock and poultry.



PURINA...YOUR PARTNER IN SERVING ANIMAL AGRICULTURE

WHAT'S NEW IN FEEDING?

Putting Research to Work

By Spencer H. Morrison, Ph.D., D.V.M.

Effect of Pulverized Limestone and Dicalcium Phosphate on the Nutritive Value of Dairy Feed

● N. F. Colovos, H. A. Keaner and H. A. Davis, New Hampshire Agricultural Experiment Station; Journal of Dairy Science, Vol. 41, No. 5, May, 1958.

ABSTRACT

Three years' work on the effect of adding pulverized limestone and dicalcium phosphate to various dairy rations as affecting digestibility was studied using dairy heifers between 18 and 24 months of age during winter and spring periods.

In the first preliminary experiments (three trials) using six heifers, it was observed on all silage rations that the addition of 100 grams daily per animal of pulverized limestone significantly depressed the digestibilities of both protein and energy regardless of the type of silage fed. Silages used were: Ladino-brome molasses, Timothy sulfur dioxide, and Timothy molasses. All animals received a cobalt supplement and were allowed free access to plain salt blocks.

In the second experiment a more comprehensive series of trials was carried out, using three heifers fed an all-silage ration. The silage ration was supplemented with 50 or 100 grams of pulverized limestone per day. All animals had access to the various rations during some period of the experiment, and were given supplementary cobalt as well as free access to plain salt blocks. The results of the previous year's work were confirmed since the addition of 100 grams of limestone again caused a significant depression of digestibilities both protein and energy. However, there was not a significant effect from the addition of merely 50 grams of limestone daily to the all-silage ration.

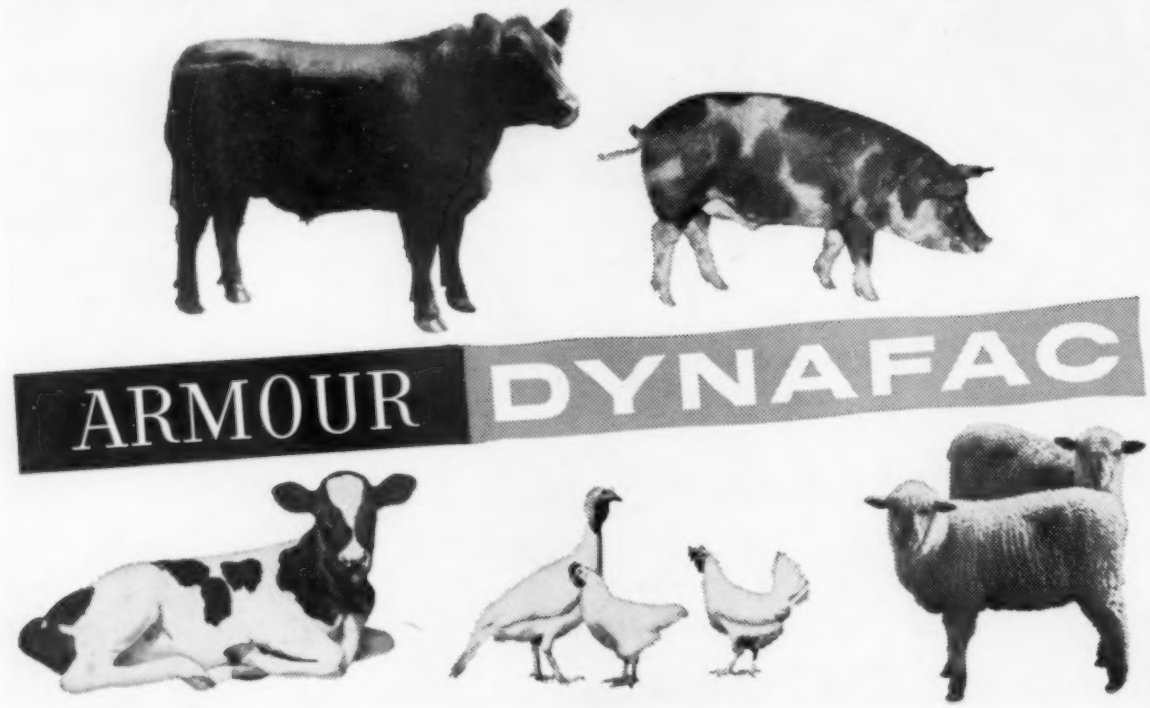
In the last year's work four heifers were used to determine the effect of adding various levels of limestone and dicalcium phosphate. During the various periods of the trials all animals received at some time the following: (1) 0 minerals, (2) 1% limestone, (3) 1% dicalcium phosphate, (4) 2% limestone, (5) 3% dicalcium phosphate or (6) 2% limestone plus 2% dicalcium phosphate. The rations fed consisted of mixed grass hay (6.39% crude protein) and a 16.82% crude protein concentrate mixture fed 50-50 by weight. The animals were also allowed free access to trace-mineralized salt blocks.

Results of the third trial confirmed the fact that limestone exerted an effect on digestibility. At the 2% level, both protein and energy digestibilities were significantly depressed, while at the 1% level of limestone only the digestibility of energy was significantly affected. Neither the 1 nor 2% levels of dicalcium phosphate affected digestibilities of protein or energy significantly. The addition of 2% dicalcium phosphate to the 2% limestone ration tended to minimize the depressing effect of limestone. Although not significant, the data also tend to show that addition of phosphorus increased the digestibility of the protein of the ration.

COMMENT

Routinely most feed manufacturers add 1 to 2% of ground limestone or other calcium source to dairy feeds regardless of roughage being fed by the farmer. These data suggest that possible consideration should be given to not only furnishing calcium, but also phosphorus. It was demonstrated many years ago by Vermont workers that milking dairy cows could produce satisfactorily on all-grass hay rations merely supplemented with mixtures of farm grains. When dairy animals are fed on mixed legume hay rations or all-

(Turn to FEED RESEARCH, page 89)



ARMOUR DYNAFAC, THE CHEMOBIOTIC ADDITIVE,

HELPS LIVESTOCK AND POULTRY MAKE BETTER USE OF FEED --

PROVIDES EXTRA HEALTH INSURANCE

BEEF CATTLE—Dynafac boosts gains by 10 to 15%. It knocks out harmful bacteria in the intestinal tract—does not disturb beneficial organisms in the rumen. Fed with or without stilbestrol, Dynafac gives improved performance, cattle look better; improved bloom with Dynafac is unmistakable and these animals stay on feed!

CALVES (beef and dairy)—Dynafac builds a healthy, husky dairy heifer with the foundation for a high-producing milker. Beef calves show the same fast response to Dynafac—heavier weaning weights and lower-cost gains.

HOGS—Dynafac promotes growth and helps control scours. Dynafac has often brought scours under control where other remedies have failed. To date, no Dynafac-resistant strains of scours-causing bacteria have been observed. In controlled tests hogs on Dynafac usually show 10 to 20% greater gain.

LAMBS—1/2 lb. daily gain or better is normal for good lambs getting Dynafac in a balanced ration. It counters stress conditions—gets lambs off to a fast start for early gains. Feedlots that have regularly had 5 to 7% death loss report mortality down to less than 1% for lambs on Dynafac.

POULTRY—(layers, broilers, turkeys)—Dynafac controls harmful bacteria in the intestinal tract without impairing beneficial organisms. Selective chemobiotic action produces a healthy digestive canal —enables a bird to get more nutrients from its feed. This means faster growth and heavy production.

NOTE: FUNGI GROWTH IN THE DIGESTIVE TRACT is common in livestock and poultry. Fungal organisms impair growth and vitality—or in severe cases kill an animal or bird. Dynafac knocks out fungi on contact by destroying its reproductive spores.

ARMOUR AND COMPANY, CHICAGO, ILLINOIS

Dynafac is distributed nationally for Armour by the Chemical Department, McKesson & Robbins, Inc. Write us for further information.

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VICTOR
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THE CHASE MILLS
CHASE, NEBRASKA

DISTRIBUTED BY THE FOX COMPANY
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VITAMIN OIL
NEWFIELD NEW JERSEY
"PRODUCTS OF PROGRESS"

Read
CAPITAL
COMMENT
In
FEEDSTUFFS

EFFICIENCY

(Continued from page 18)

this day of scarcity of trained farm labor, the farmer often can't afford to take time off to go to the mill with his grain. He likes to have us store it and then draw on it as he needs, and have the bulk mixed feed brought back to him and placed where he wants it, without any hand labor."

"We don't do much advertising except for occasional newspaper and direct mail," points out Mr. Fisher. "I do most of my advertising by contacting farmers to whom I deliver feed, checking their flocks and herds and helping them set up a program to make more profit. So long as we have the equipment to do the job of grinding, mixing, furnishing molasses, etc., we are in an excellent competitive position. I'm very happy we are making a profit on the grinding and mixing, too, instead of breaking even. Why shouldn't such a department be a profitmaker? Part of the story lies in charging enough per hundredweight for this very needed and essential service. We find that farmers are willing to pay our prices for quality grinding and mixing and the fast delivery service which goes with it."

Silas Hodel, a retired farmer, is president of the milling firm. Mr. Fisher manages the three mills for him, and is also a stockholder.

BUILDS NEW ELEVATOR

HARPER, IOWA — W. C. Gretter & Sons, Harper, has completed construction of a new 55,000-bu. elevator. The structure is 32 ft. square and 60 ft. high with an additional 30 ft. in the headhouse.

KEES & COMPANY
Processors of DRIED FISH SOLUBLE PRODUCTS
A "MUST" IN EVERY SWINE OR POULTRY RATION
Call or write for complete information and price
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NOW...4 ways better

KELLY DUPLEX
VERTICAL FEED MIXER

NEW MOTOR MOUNT
More versatile because it can be used on either side of the mixer—will accommodate motors of various sizes. More practical because it makes belt take-up easier.

NEW INSPECTION DOOR
Gives you easy, instant access to mixing chamber. Provides an extra inspection window. Makes practical the use of hardened, bolt-on agitators. Available at extra cost.

NEW DUST-PROOF BAGGER
Designed to bring greater ease and efficiency to your sacking operation. Leaves no telltale dust deposits on mixer. Helps keep your mill clean.

NEW HOPPER BOTTOM and bearing housing.
Has bolted construction for easier access to working parts. Saves you time and money when maintenance is required.

It's no secret why—over the years—the Kelly Duplex Vertical Feed Mixer has been such a favorite with feed mill and elevator operators all over the country.

The Kelly Duplex is unconditionally guaranteed to mix more feed with the same power than any other machine on the market—and to produce a mixture so evenly and thoroughly blended that it will stand the most rigid inspection. A complete batch can be loaded, mixed and sacked in less than fifteen minutes.

Constructed of heavy, arc welded steel—the Kelly Duplex completely eliminates feed loss, is practically noiseless in operation, and is so liberally rated that owner after owner reports it will hold up to twice its stated capacity.

Now, with a new motor mount, a new inspection door, a new bagger, and a new hopper bottom and bearing housing—the Kelly Duplex Vertical Feed Mixer is 4 ways better than ever before—and, more than ever before, is your one best mixer buy.

For top performance, lower maintenance, greater ease of handling and BIGGER PROFITS, you owe it to yourself to fully investigate this outstanding machine before you buy any feed mixer. Check and mail coupon today for full details.

CLIP ALONG THIS LINE . . . FOLD OVER, FASTEN . . . AND MAIL TODAY!

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BUSINESS REPLY ENVELOPE
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The Duplex Mill and Manufacturing Company
Springfield, Ohio

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Springfield, Ohio

Yes, I'm interested in the KELLY DUPLEX machinery checked at the right. Please send me full information on these machines without any obligation.

Layout service and planning details available without cost.

☐ Vertical Feed Mixer
☐ Ear Corn Conveyor
☐ Vertical Screw Elevator
☐ Electric Truck Hoist
☐ Corn Cutter and Grader
☐ Corn Sheller with Blowers
☐ Pitless Corn Sheller
☐ Regular Corn Sheller
☐ Magnetic Separator
☐ Cob Crusher
☐ Bucket Elevator
☐ Chain Drag
☐ Twin Molasses Mixer
☐ Hammermill
☐ Corn Crusher-Regulator
☐ Grain Blower
☐ Corn Scalper
☐ Mill Blower
☐ Grain Feeder
☐ Electric Bag Cleaner
☐ Forced Air Carloader
☐ Complete Line Catalog

NAME .....
TITLE .....
FIRM ..... PHONE.....
CITY ..... STATE.....

UP OR DOWN?

By Leonard W. Schruben
Agricultural Economist, Kansas State College

Keep Price Records

No one can expect to know what is going on in all markets at all times. However, feed men need to keep a market record as much, if not more, than any other local businessman. Top managers keep in tune with what's going on in the market place. This is written to help you follow market developments.

One of the easiest things to do is to keep a notebook handy in which you will jot down each day the prices of important products produced on farms in your territory. You can be of genuine service to your customers if you are well informed, and service usually pays off in added profits.

You needn't go to a lot of paper work in keeping track of prices. The simple jotting down of prices at regular intervals may be enough. Some prices should be kept daily while for others only once a week will suffice. To make a record book, all you need is a pocket notebook. You can add a few lines up and down the page which will make it easier for you to record and later to compare prices over a period of time. Write the commodity name across the top of the page and the day of the month down the side. If you have a book with at least 26 lines across the page, you'll have a line for each market day of the month or by using two pages, a line for each week of the year. Start a new month on a new page if you are keeping a daily record.

Be sure the report you follow is issued by a reliable party. Reliable reports are fairly easy to find. Many daily and weekly newspapers carry a report of recent developments. Government agencies have market reporters in the larger markets and issue reports on a daily basis for some commodities and weekly, monthly, and annual reports for most agriculture products. Also, all you have to do is turn a knob and you can get regular reports by way of radio.

You should compare price quotations in several reports to see whether they are in agreement. If not, you better investigate to find out why they disagree.

Keep Up-to-Date

A little information may lead to unsound decisions, especially if your knowledge of the market is too little or too late. Markets move fast, and information which is out-of-date can lead you to unsound decisions.

At one time in our history it was difficult for ordinary businessmen to know what was going on in distant markets. But now it's fairly easy for you to keep up-to-date. If you form a regular habit of checking at least one market report each day, you are going to be well informed as to the trends.

One of the first "don'ts" is don't try to follow all the markets for all products all the time. It would be impossible. Professional price analysts have developed intricate charts and diagrams. These can be useful if you want to spend that much time. But you can operate with less of this extra bother and still help your profits. It takes a while for anyone to become familiar with the style of a given type of report. The point is if you start out in a big way you can easily use all your time studying the market and not have time left over to sell feed. On the other hand, it's easy to follow several products if you get started.

Watch for trends. Forecasting prices is risky business, of course, and no one yet has ever discovered a method which will make sure his forecast will be correct. This is why you need to watch for new trends in prices and be kept up-to-date because price forecasts issued one day may be out-of-date or inappropriate the next as new information becomes available or as weather patterns shift. Only you can make the final decision as to when to buy and sell. It's a good idea to become familiar with typical price patterns because prices of some products are depressed during the same season each year and are higher during another season.

In addition to keeping your own records, you should make regular use of crop and livestock reports. The U.S. Department of Agriculture and the state departments of agriculture issue regular reports on the conditions of crops and on livestock numbers. They are released in such a way so that everyone has an equal chance to learn about crop conditions.

Except for weather information, market news is about the most complete public information provided by federal and state governments. There are about 125 cities from which reports of various commodities are released. About two thirds of these are operated all year round while the remainder are on a seasonal basis.

Sometimes it's too easy to overemphasize price. An adequate report also includes information about supply, the volume of trading and the general tone of the market.

PLANNING COMMITTEE—The Midwest Feed Manufacturers Assn., in cooperation with the state veterinarian medical associations in the association's eight-state area, will sponsor a nutrition conference for veterinarians at the President Hotel in Kansas City Dec. 8-9, 1958. Purpose of the conference is to improve relations between feed men and veterinarians. Planning committee for the conference is (left to right, standing): Ray Ammon, Quaker Oats Co., St. Joseph, Mo., president of the MFMA; Dr. W. E. Poley, Zip Feed Mills, Sioux Falls, S.D.; Dr. Ernest Bechtel, General Mills, Inc., Indianola, Iowa, and Dr. LeRoy Hansen, Foxbilt, Inc., Des Moines. Seated (left to right) are: Maxwell Cooley, Hoffman-Taff, Inc., Springfield, Mo.; Maurice Wells, Waterloo Mills, Waterloo, Iowa; Dr. Chase Wilson (committee chairman), Dannen Mills, Inc., St. Joseph, Mo., and Dr. John VanZant, Staley Milling Co., Kansas City, Mo. The conference will act as a kick-off for regional nutrition meetings in individual states.

April Fish Meal Output Down 15%

WASHINGTON—Production of fish meal and scrap during the month of April was down 15% from the same month in 1957, the Fish & Wildlife Service reports.

Output of meal and scrap was 5,100 tons for April, 1958, compared with 6,005 a year earlier. The production of homogenized-condensed fish amounted to 2.5 million pounds during April—less than half the amount reported for the same month a year earlier. However, over 4.6 million pounds of fish solubles were produced during April, 1958—a gain of 200,000 lb. over the same month of 1957.

Menhaden meal production during the month was just over 1,000 tons, a drop of 222 tons from the corresponding month last year.

Meal and scrap production through the first four months of the year totaled over 11,600 tons, according to the report. This is 5,000 tons below the same period a year earlier, however.

NAMED STORE MANAGER

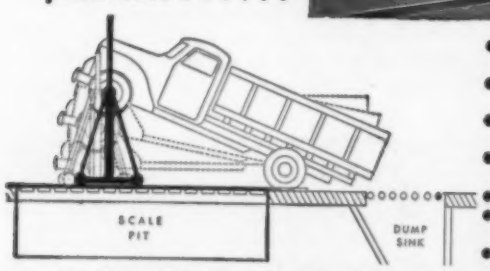
BELEN, N.M. — Charles Pettis, former manager of the Albuquerque (N.M.) Feed Store, has been named manager of the Mid-Valley Feed Store here.

Look what we've done!...

FORDS HYDRAULIC TRUCK LIFTS

New

The low cost answer to your truck hoist problems.....



- *Requires no superstructure to support hoist plus load.*
- *Installs easily on average driveway. No millright required.*
- *Does not interfere with present overhead or under floor facilities.*
- *Requires no pit for hydraulic cylinder.*
- *Requires as little as a 2 HP motor.*
- *Unit travels on track clearing scale deck.*
- *Low cost lift, low cost installation.*

Fords truck lifts use the light farm hoist principle, but are of heavy duty construction for commercial use. The entire lift assembly is mounted on a carrier that travels on tracks fastened to the driveway floor, clearing the truck scales for fast, convenient positioning of the truck at dump sink.

One powerful cylinder does all the work. The lifting action can be stopped, started, raised, or lowered, and the direction reversed from any position, simply by moving the control valve. "Free Rolling" feature automatically centers hoist under front wheels. Incorporates all important safety features. *Write today for complete information!*

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MYERS-SHERMAN COMPANY
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NEW FORTIFIERS for LOWER FEED COST!

new BROILER Vitadine
"Power packed" with high levels of all essential nutrients including antibiotics, Arsanilic Acid, UGF, Vitamins and Trace Minerals.

new STARTER SWINEX WITH DYNAFAC
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WRITE TODAY For Complete Report on These New Fortifiers! DEPT. 278

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Trade Center in Europe Planned By Farm Bureau

CHICAGO—Plans for establishing a U.S. agricultural trade center in Rotterdam, the Netherlands, by the American Farm Bureau Federation have been announced by Charles B. Shuman, federation president.

Authorization for such a center to promote and develop markets in western Europe for U.S. farm commodities was given by the voting delegates of the member State Farm Bureaus at the federation's annual convention in December, 1957. Action on establishing the center was voted by the board of directors recently.

Target date for opening the Farm Bureau trade center is October.

Mr. Shuman said the trade center staff will work closely with the federation's market development department which will maintain contacts with private traders, private producers, cooperatives and other agricultural groups having export interests.

"It is not expected that the trade center will reduce the need for private or cooperative organizations operating in the field. On the contrary, the trade center should supplement and complement these activities," Mr. Shuman said.

Main function of the Farm Bureau trade center will be to facilitate sales of agricultural products abroad. Suggestions and ideas of promotion and sales effort will be developed by the center.

"In our preliminary discussion with representatives of agricultural trade interests we have found considerable enthusiasm for the kind of private trade center that is contemplated. Our trade center will work with U.S. agricultural attaches in all countries, and also will seek to establish an information network among private trade interests," Mr. Shuman explained.

"The American farmer is vitally concerned with world markets since one out of 10 acres of U.S. production is exported. Nearly every farmer gains when we expand our export markets. One reason is that larger markets mean higher net income."

The federation president pointed out that western Europe is by far the largest market for U.S. agricultural exports, but that the market has not been properly developed, due in part to a lack of an organized selling effort and a lack of knowledge as to what the export market wants.

BUYS ELEVATOR

BINGHAM LAKE, MINN.—Bert Struyk, Hampton, Iowa, has purchased the Charles A. Leim Elevator Co. here. The elevator firm had been owned by the Leim family since 1902. Mr. Struyk has been manager of the Farmers Elevator at Hampton.

West Virginia Leaflet Lists Credit Sources

MORGANTOWN, W.VA.—A publication, "Sources of Credit for Broiler House Financing," is now available from West Virginia county agricultural extension offices, according to an announcement by T. R. Hash, extension poultryman at West Virginia University.

The leaflet, Misc. Pub. No. 69, contains specific information on sources of credit which are available, such as Farmers Home Administration, National Farm Loan Assn., Production Credit Assn., banks and other private lending agencies, Federal Housing Administration, Title 1, and Small Business Administration.

The leaflet states that the average broiler flock in West Virginia is far too small to return satisfactory profits with present profit margins, adding that adequate financing is necessary for a modernization program.

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70% corn distillers solubles
30% corn distillers grains

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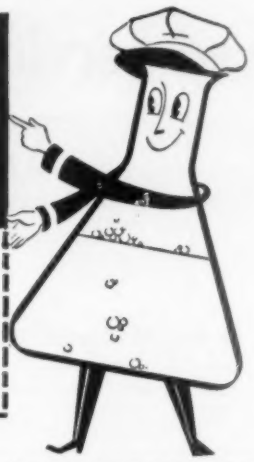

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Riboflavin — Vitamin B-12 — GP-101, source of whey and other unidentified growth factors

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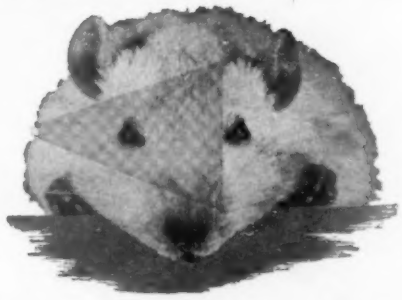

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Feed Service Bulletin Board

Helpful Notes on Feeding and Management for Feed Men and Their Customers

Predicts Egg Mechanization

The mechanical achievements of a typical egg producer of the future—although there may be a few such producers around already—have been pictured by a University of Maryland poultryman, Wade H. Rice. In short, it adds up to a definitely commercial operation.

This typical egg producer of a few years hence is envisioned as one who, when he goes to clean out his laying house, will drive a small tractor with a dozer blade through a specially-built door in the laying house and push the litter to a plate-covered pit in the floor.

There, a motor-driven loader or chute with its hopper in the pit will convey the litter to a manure spreader outside.

Such equipment as the dozer tractor for cleaning would do the work of 10 or 12 men with shovels, leaving only the finer cleaning and disinfecting to be done by hand or with other power equipment, the Maryland poultryman adds. Feeders, fountains, roosts and nests also would be arranged with labor saving in mind. They would be placed in a straight line down the house to make each line easily accessible for chores, adjustments or repairs and save steps.

Actually, egg producers will have mechanized methods similar to those already used in large-scale broiler production, Mr. Rice feels. As he sees it, poultrymen should be thinking in terms of handling 3,000 or more layers for each man employed full time. And if one man is to do a good job of production and marketing of eggs from 3,000 or more layers, he says, it follows there will have to be a good investment in mechanical equipment.

◆

Grain for Calves?

That oft-asked question about the value of grain for calves on pasture has been answered in the affirmative by a research report from the University of Kentucky.

William S. Griffith, dairy specialist at the Virginia Polytechnic Institute, cites this Kentucky report: In a test conducted last summer 16 calves were put on good bluegrass pasture at an average age of 3½ months. Eight of the calves were each fed 3 lb. of grain daily.

The calves receiving the grain gained 1.2 lb. a day, while the calves getting no grain averaged 1 lb. a day. The average increase in height at withers was 6.5 in. for the grain group and 5.7 in. for the no-grain group. In general, the grain-fed calves had fewer parasites than did the calves which did not receive grain.

While calves can live and grow on pasture alone, Mr. Griffith agrees, he advises Virginia dairymen to feed grain for at least the first eight months. After that time thrifty, healthy calves can develop profitably on good-quality forage (pasture and hay) without grain, he says. Small calves and those that do not seem thrifty at eight months, should be given grain until they are a year old.

◆

Price of Lost Protein

A firm price tag has been put on the value of putting up early-cut hay, in preference to late-matured hay, by researchers at both South Dakota State College and the University of Nebraska.

South Dakota's researchers report early-cut hay yielded 49 lb. more protein per acre than the late-matured crop. They figure it would take 150 lb. of 40% protein supplement to make up the loss in protein from each acre if late-matured hay was fed instead of the early. Figuring protein about 5¢ lb., they arrive at a $7.50 protein loss for each acre.

The Nebraska work showed that a ton of hay cut at the blooming stage contained 268 lb. protein. A fall-cut ton would have contained only 78 lb.

The most important characteristic of high-quality hay is leafiness and green color, the researchers emphasize. Poor hay lacks these characteristic and often causes mineral deficiencies and unthriftiness in livestock.

◆

Beef Feeding Variations

Wide variations in feed efficiency, daily gain and body conformation among beef bulls that completed a recent feeding test at the University of Missouri have shown sharply the importance of selecting top-gaining herd sires. A considerable amount of variation in rate and efficiency of gain is due to heredity, researchers have established.

Test scores on the 11 animals ranged from a high of 98 to a low of 45, out of a possible 100, according to Dr. John F. Lasley, university animal breeding specialist. The bulls were all born within a 30-day period and were selected for the test from the beef cattle herd at the university's Weldon Springs experimental farm, on the basis of heavy weaning weights and good conformation scores.

Average daily gain during the 140-day feeding trial varied from a high of 2.8 to a low of 1.5 lb. The self-fed ration was made up of one part by weight of ground alfalfa and two parts of grain and concentrate mixed to the proportion of 10 parts cracked corn to one part soybean oil meal.

Feed efficiency also varied considerably during the test, said Dr. Lasley. The bull with the 98 test score needed only 385 lb. of corn to make 100 lb. gain, while the bull with a score of 45 needed 565 lb. of corn to make the same gain.

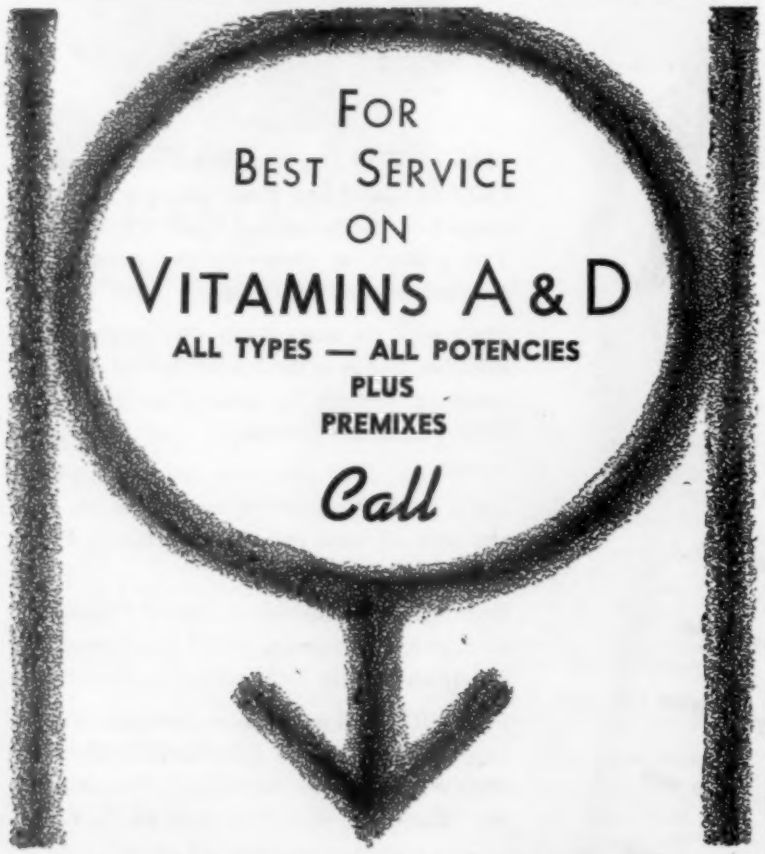
Similar differences were seen in the amount of soybean oil meal and hay needed for each 100 lb. gain. The bull with the 98 score needed only 38 lb. oil meal and 294 lb. hay for each 100 lb. gain, while the lowest-scoring bull needed 56 lb. oil meal and 465 lb. hay. Rate of gain and feed efficiency figures for the other nine bulls ranged between these two extremes.

Selection of top-gaining herd sires should improve such traits in herd offspring, the animal breeder points out, so it is important that a beef cow herd owner buying a bull insist that such information be available on any possible herd sire whether for a purebred or commercial operation.

It's also important to get the score, or grade, as well as rate and efficiency of gain figures, of each bull being considered as a herd sire, since such traits are of considerable economic importance. Rate and efficiency of gain and beef type and conformation all must be looked for in a bull if improvement is to be made, Dr. Lasley concludes, since such traits are inherited independently.

John M. Harrison

SALES REPRESENTATIVE — John M. Harrison has been appointed regional sales representative for the Ray Ewing Co., Pasadena, Cal., it was announced by Jack Plonsky, executive vice president of the firm. Before joining the Ewing organization, Mr. Harrison represented an eastern chemical company in the Southwest area and was former sales manager of the Bewley Mills, Ft. Worth, Texas.



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Serving the Feed Trade For Over 20 Years

FRYING PAN—The "world's largest frying pan" is shown set up at Denton, Md., to supply the crowds attending the Delmarva Chicken Festival June 26-28 with "Delmarvalous" fried chicken. The free chicken dinner June 27 was part of a three-day program which included selecting a Miss Delmarva (Helen Pittard, Georgetown, Del.), chicken cooking contests, equipment exhibitions, entertainment, a parade and other attractions. Rains and strong winds upset the program schedule several times, at one time causing the exhibition tent to collapse.

FEED RESEARCH

(Continued from page 84)

legume hay rations, an oversupply of calcium is furnished, and no calcium supplement is usually necessary in the mixed concentrate fed. These studies certainly indicate a need for further work on calcium-to-phosphorus ratios of ruminant animals. Recent work from both Indiana and Iowa stations with beef cattle also suggests that additional phosphorus over commonly used levels is likely beneficial.

●

Effect of Para-Amino Salicylic Acid on Growth of Male Holstein Calves

● E. M. Kesler, P. R. Shellenberger and J. M. Wilson, Pennsylvania State University; Journal of Dairy Science, Vol. 41, No. 5, May, 1958 (Technical Note).

ABSTRACT

Twelve male Holstein dairy calves were divided at random into two groups after receiving colostrum milk at least one day after birth. All calves received limited amounts of whole milk together with a dry milk replacer. Each calf received a total of 60 lb. whole milk and 39.4 lb. dry milk replacer. No antibiotic was fed either in the milk replacer or in the calf starter. Calf starter was fed free choice to a maximum of 4 lb. daily. Second-cutting mixed alfalfa-grass hay was fed free choice.

Para-amino salicylic acid (PASA) was fed to a group of calves at a rate of approximately 90 mg. per 100 lb. of body weight per day. The milk replacer contained PASA at the rate of 90 mg. per pound, and the starter at the rate of 50 mg. PASA per pound.

The statistical analysis of the experimental results showed that the controls (no PASA) outgained and outgrew the supplemented calves. They also required less TDN per pound of gain than the PASA animals.

COMMENT

It has previously been reported by Wing (1955) that PASA would stimulate growth of young dairy calves to almost the same extent as Aureomycin. This Pennsylvania trial throws some doubt on whether PASA is an effective growth stimulant for calves under all conditions.

ALFALFA MEAL PRODUCTION

May, 1958, With Comparisons

The Production & Marketing Administration reports the following statistics on alfalfa meal output (in tons):

Period:	Sun-cured	Dehydrated	Total
May, 1958†	12,000	118,700	130,700
April, 1958*	13,800	15,000	28,800
May, 1957	12,200	114,900	127,100
April, 1957	12,500	20,500	33,000

*Revised. †Preliminary.

Stocks of Alfalfa Meal at Producing Plants, in Tons

May 31, 1958	2,600	115,600	118,200
April 30, 1958	3,500	81,700	85,200
May 31, 1957	2,900	70,400	73,300

Dr. Ernest H. Volwiler Named to Science Post

NORTH CHICAGO — The Senate has confirmed President Eisenhower's appointment of Dr. Ernest H. Volwiler, chairman of the board of directors of Abbott Laboratories, North Chicago, to the board of the National Science Foundation.

The 24-member board directs the foundation's programs to promote the progress of science, advance the national health, prosperity and welfare, and to secure the national defense.

Members of the board are nominated by the President from among persons eminent in the fields of the basic sciences, medical science, engineering, agriculture, education or public affairs.

Dr. Volwiler's appointment is for six years. He will serve on the board with another Abbott director, Dr. Roger Adams.

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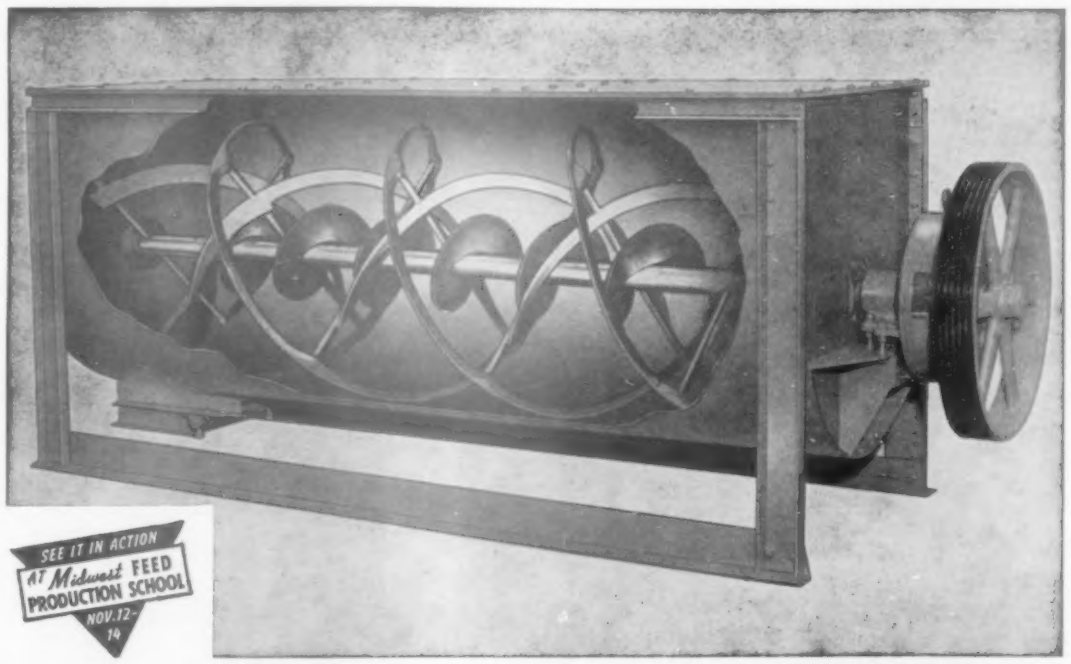

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Now you can get a horizontal batch type mixer, with exclusive "Triple Action" mixing, created by the unique Strong-Scott triple ribbon and spiral assembly. This blending, folding and mixing action exposes each particle to thousands of separate mixing actions per minute, producing a well balanced, uniformly mixed product of the highest efficiency known.

THOROUGH MIXING — Complete mixing and blending in 2 to 7 minutes. Smooth interiors, without ridges or vanes, eliminate any gathering of materials and assure a thorough, sanitary, clean operation. Available in sizes of ⅓ to 6 ton capacities.

PRECISION ENGINEERING—The Strong-Scott Triple Action Mixer offers the ideal combination of modern engineering design, simplicity and overall ruggedness. The end bearings supporting the agitator assembly adjust vertically assuring an exact tolerance between the ribbons and the tub surface at all times. Built of heavy gauge steel, stainless steel or commercial alloys.

VERSATILITY—May be overhead or floor mounted. An overhead installation of a Triple Action Mixer may utilize the dual discharge arrangement. A reversing switch permits bulk discharge directly into a truck, or to the handy double sacker at the opposite end of the mixer, which can be located inside the plant. Consult Strong-Scott with any mixing, separating or grinding problem you may have. Let our production engineers provide your answer at no cost to you.

The Strong-Scott Pre-Mixers are also of the Triple Action agitator design. Normally supplied with a high leg mounting, they are engineered for initial preparation of feed supplements containing chemical ingredients, where a large mixer is not required. Available in 12, 15 and 18 cubic foot sizes.

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Soybean Association Outlines Program For Annual Meeting

HUDSON, IOWA—The merchandising of U.S. soybeans and soybean products will be featured at the annual convention of the American Soybean Assn. at Hotel Fort Des Moines in Des Moines Aug. 19-20, the program committee announces.

The first day of the convention, Aug. 19, will be devoted to markets. The export programs of both the Soybean Association and the Soybean Council of America, Inc., will be reviewed in a half-day session.

With almost 40% of U.S. soybeans now going abroad either as soybeans or as oil, foreign markets are playing a major role in the prosperity of soybean farmers. Soybean acreage is expanding again this year. To hold and expand export markets for soybeans and soybean products have become of vital importance to U.S. agriculture, the ASA program committee says.

There will be reports from men actively in charge of the soybean export market development programs in Japan, Spain, Italy and Germany.

Two visitation teams from Italy, one from the livestock feed industry, the other from the vegetable oil industry, and a team from the Spanish vegetable oil industry will be making a tour of the U.S. soybean industry and will attend the convention.

Edward M. James, oil technician for the Soybean Council of America, will tell about his work in Turkey, Spain and Italy and will give his interpretation of the outlook for sales of U.S. soybean oil in these countries.

A special market day feature will be a panel made up of men who have been abroad on special assignments for the Soybean Association and the Soybean Council. Included on the panel will be men from industry, Soybean Association and Council officials, government officials and college men who have done survey work and participated in U.S. exhibits of soybeans and soybean products in international trade fairs abroad.

The annual business meeting of the National Soybean Processors Assn. will be held Aug. 18 at Hotel Fort Des Moines preceding the ASA meeting.

Firms serving the soybean industry will offer exhibits at both meetings.

WASHINGTON ELEVATOR SOLD

EDWALL, WASH.—The Edwall Grain Growers has announced the purchase of the Centennial Mills, Inc., elevator and grain storage facilities at Sprague. The transaction includes the 80,000-bu. elevator and 50,000-bu. storage tank, situated on four lots in the west part of town. The facility will add 130,000 bu. of storage to the present 1.5 million bushels available in the company elevators at Edwall, Waukon and Canby.

V. A. Acer T. C. Jewett

Two Spencer Kellogg Executives Retire

BUFFALO, N.Y.—Two vice presidents and members of the board of directors of Spencer Kellogg & Sons, Inc., Buffalo, have retired. They are Victor A. Acer and Theodore C. Jewett.

Mr. Acer has been with the company 42 years, and has been a vice president and director for the past 25 years. He became acting sales manager of the company in 1919, general sales manager in 1928 and vice president and a director in 1933.

Spencer Kellogg's sales volume has grown to more than $100 million a year from the $17,736,000 when he joined the company.

Mr. Jewett started with the company in 1938, being responsible for the operation of the mills and production. He served first as chief engineer and then as general superintendent, becoming a vice president in 1946. He was elected a director in 1941.

Earl Crouse to Speak At Poultry Convention

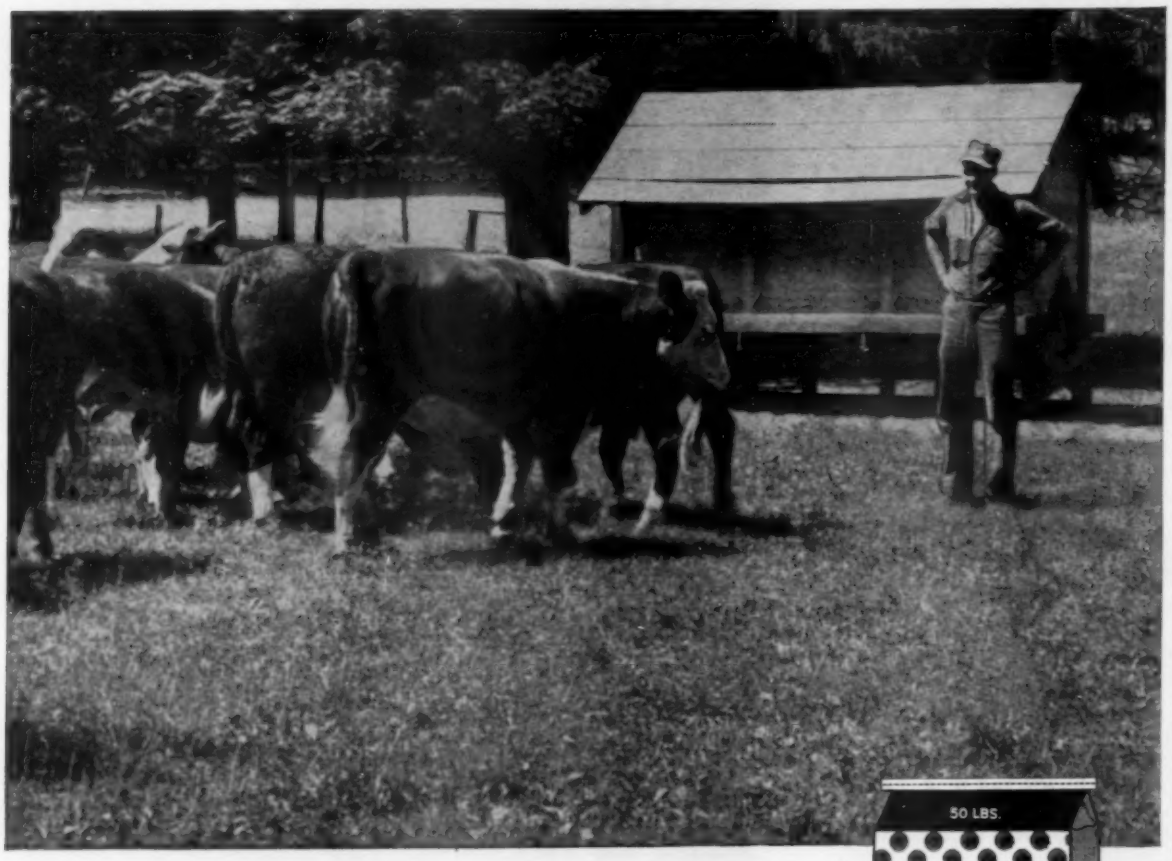
MORGANTOWN, W.VA.—Earl F. Crouse, vice president of the Doane Agricultural Service, St. Louis, will be one of the main speakers on the educational program at the 16th annual West Virginia Poultry Convention at Moorefield, Hardy County, July 30-Aug. 1

This was announced recently by Prof. Harold M. Hyre, department of poultry husbandry at West Virginia University, chairman of the publicity committee for the event.

Another address will be given by Dr. Paul H. Margolf, department of poultry husbandry at Pennsylvania State University. His topic will be "Poultry Product Research."

Other speakers will be M. C. Small, Mt. Morris, Ill., executive secretary of the National Turkey Federation, and Howard Kauffman, a turkey grower from Waterman, Ill. Speakers from WVU will be Dr. Homer Patrick, head of the poultry husbandry department; Dr. N. O. Olson, professor of animal pathology; Paul E. Nesselroad, department of agricultural economics, and Ted R. Hash, extension poultryman.

A panel will discuss "Are Volume and Efficiency the Keys to Our Poultry Future?"



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Your customers will want Murphy's . . . it's the *only* pasture concentrate which eliminates daily trips to beef cattle on grass . . . profitably. That's why you can make faster sales . . . and sell throughout the summer months . . . with Murphy's.

Beef gains can go up as much as ¾ pounds per head per day on grass. Your customers can *see* results like this. Then they'll be back to see you—with another order for Murphy's.

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Put the Murphy Service Man to work this summer in *your* trade area. Let Murphy's radio, TV, and farm paper advertising—and Murphy's labor-saving concentrates—make faster summer sales for you *this* pasture season.

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Earn up to $1.50 profit per bag by mixing your own brand of feed with the BROWER MIXER . . . the extra profits soon pay for it! WHIRLS the ingredients instead of just tumbling them . . . mixes a perfect blend in about 10 minutes . . . fast, economical! Built for years of trouble-free service. Five sizes. World's Largest Selling Mixer!

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The Vantress Dominant White Male Line provides the Broiler Industry top production efficiency through bred-in superior performance. Vantress Cross meat chickens are more profitable because they live better, grow faster and use less feed per pound of meat produced. Vantress Cross broilers dress easier through mechanical equipment, yield a higher percent of preferred parts, have more eye appeal because of better conformation and give you and the retailer faster turnover, repeat business and expanding sales volume.

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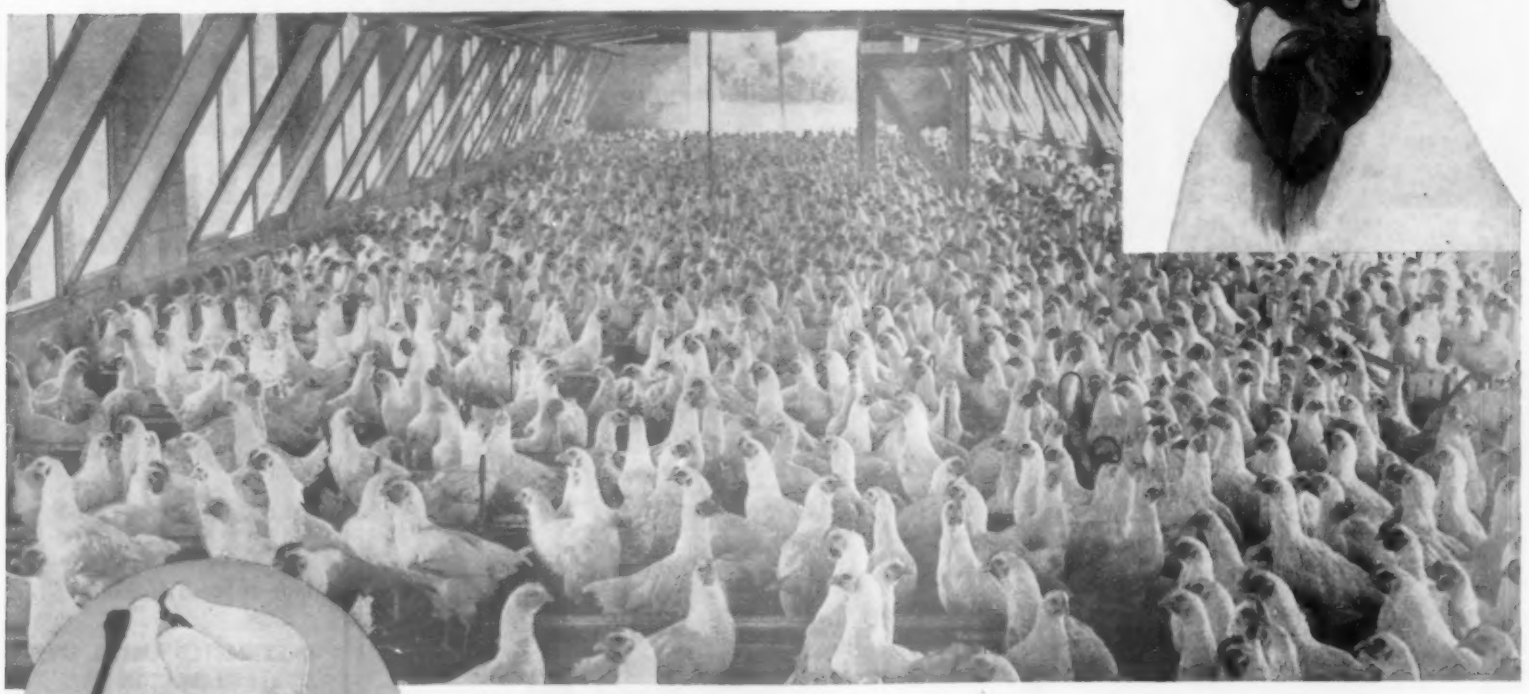

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EXPERIMENTS

(Continued from page 16)

milk replacer ration with whole milk in a calf-raising system was reported. Thirty, four-day-old Guernsey calves were assigned equally, according to birth weight, to the following five rations: 1, whole milk; 2, milk replacer; 3, whole milk plus vitamin B_{12}; 4, milk replacer plus vitamin B_{12}; and 5, equal mixture of milk replacer and skimmilk.

Liquid rations were fed daily at the rate of 10% of birth weight from four to 42 days of age. The carryover effect of these rations was measured for an additional 42 days and a grain mixture and orchard grass hay were fed throughout the experiment.

Weight gains from the whole milk rations (1 and 3) were significantly greater than gains from the milk-replacer rations (2, 4 and 5). Performance of both types of rations was increased, but not significantly, when vitamin B_{12} was added.

Addition of skimmilk to the milk-replacer ration (2) did not significantly increase weight gains. The calves that received the whole milk rations continued to grow at a significantly higher rate during the carryover period. Feed efficiency was significantly greater for calves receiving the whole milk rations. Some loss of hair was observed on two thirds of the calves on the milk replacer ration (2). Scours was more prevalent among calves on the milk-replacer rations. (M. W. Neathery, M. C. McCullough, O. E. Sell and L. R. Sisk, Georgia Mountain Experiment Station.)

Roughage for Calves

A comparison of alfalfa hay, alfalfa silage and corn silage as sole roughages for young dairy calves, along with whole milk and a starter ration, was reported. When the effect of birth-weight differences was considered, the differences in gains when feeding the different roughages were not significant. (K. E. Gardner, University of Illinois.)

A study of the development of rumination in the young calf indicates that effective rumination begins in the hand-fed calf before it is three weeks old. (E. W. Swanson and J. D. Harris, Jr., University of Tennessee.)

Association officers for the coming year are: Dr. K. L. Turk, Cornell University, president; Dr. E. C. Faye, University of Florida, vice president, and H. F. Judkins, White Plains, N.Y., reelected secretary-treasurer. Mr. Turk moved up from vice president to replace Dr. D. V. Josephson, Pennsylvania State University, as president.

ADDS STORAGE SPACE

ST. JOSEPH, ILL.—An addition of 72,000 bu. of grain storage and handling capacity is under way at the Champaign County, Illinois, Grain Assn.'s St. Joseph elevator.

Turkeyland USA reports on
Whitmoyer
CARB-O-SEP
Patent Pending

NO BLACKHEAD OUTBREAKS ON CARB-O-SEP
Not one case of blackhead with CARB-O-SEP fed birds, although blackhead was prevalent through his entire area reported a mid-western serviceman.

CHAMPIONS CARB-O-SEP FED
CARB-O-SEP fed birds dominated the championships at the Michigan Turkey Festival. Five Grand Champion birds and the Largest Bird at the Show were CARB-O-SEP fed.

FEED MANUFACTURER TESTS CARB-O-SEP AGAINST ANOTHER LEADING PREVENTIVE
No outbreaks on CARB-O-SEP . . . three outbreaks in other group. CARB-O-SEP birds were in better shape at marketing . . . feed conversion was better.

PENNSYLVANIA GROWER ENDS RANGE BLACKHEAD PROBLEM
Blackhead outbreaks were an annual problem. Last year he tried CARB-O-SEP and raised top quality birds—with no blackhead losses.

BREEDER AND GROWER PUTS ALL HIS TURKEYS ON CARB-O-SEP
5,000 breeders and later in the season 30,000 meat birds put on CARB-O-SEP. Fertility and hatchability good.

PROMINENT EASTERN GROWER CLEARS UP BLACKHEAD
This grower, with a flock of 40,000 Broad Breasted Bronze Turkeys, found CARB-O-SEP cleared up blackhead and prevented any further losses. The birds were marketed with a good finish.

CARB-O-SEP FED BIRDS WIN AT NATIONAL TURKEY CONVENTION
CARB-O-SEP fed entries were among the important prize-winners at the National Turkey Convention at St. Louis.

CARB-O-SEP was developed by WHITMOYER research. *It is the safe, potent way to get healthy, blackhead-free growth.*

MIX CARB-O-SEP IN YOUR TURKEY MASH
Give your turkey mash the best opportunity to furnish the full measure of fast, healthy growth that you so carefully put into it.
IT'S PROFITABLE FOR BOTH YOU ...AND THE GROWER

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Trithiadol is the new, superior, proved coccidiostat for chickens by Sterwin Chemicals Inc. It gives BEST FEED CONVERSION. Full data from Sterwin Chemicals Inc., 1450 Broadway, New York 18, N.Y.

Formulation and Manufacture of Dog Foods

The dog food business probably will expand substantially. A Cornell University nutritionist offers some basic information on dog foods and some suggestions for anyone in or planning to get into the manufacture of dog foods, particularly the dry products.

By Dr. C. M. McCay

The future of the dog industries is bright, with the ever-increasing number of children in our nation and the constant movement of families to the outskirts of cities.

In spite of the importance of the dog industries they must rate as "submerged." The breeding of pure bred dogs is a family enterprise and a small business venture carried on with modest capital during leisure hours. The dog industries pay special taxes but get little or no return from the state in the form of research or other assistance in the conduct of business. The reason for this is that dogs are regarded as luxuries and not worthy of the attention of animal husbandry or business organizations. Dog producers are unorganized and inarticulate in demanding more return for their tax dollars.

Dogs are one of the best consumers of agricultural waste products, although this fact is little recognized by the army of workers who try to find uses for surplus agricultural products.

Meat By-Products

The horse has nearly disappeared from American farms. Therefore, horsemeat in pet foods has been replaced by animal by-products. Large amounts of these meat by-products that are not eaten by man can be used in dog feeds. These include the udders from cull cows, the spleen, the lungs and the intestines. Unused is much of the blood of animals because this does not seem to be well tolerated in large amounts by dogs. Research upon blood as food will probably solve this problem.

Bone is well tolerated by dogs in large amounts. Fresh or slightly cooked bone is best. Even the protein of bone is nearly complete. However, much of the value of bone is lost when it is processed into bone meal. Well ground bone sterilized by radiation will probably be an important item of dog feed for the future.

Dr. C. M. McCay

EDITOR'S NOTE: The author of the accompanying article is professor of nutrition in the animal husbandry department of Cornell University, Ithaca, N.Y. This article is from a paper by Dr. McCay in the publication "Cornell Feed Service."

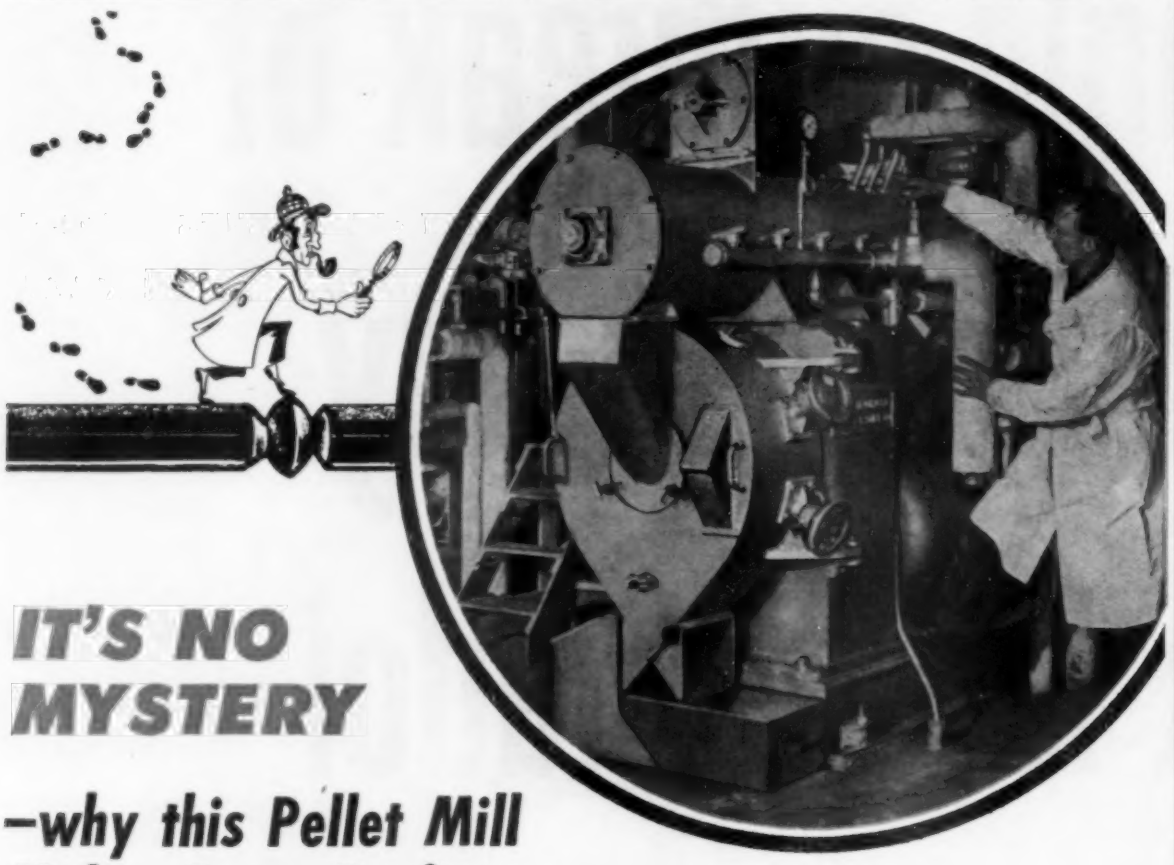
One of the first users of radiation for preserving raw meats will probably be found in the preparation of meats for cats and dogs. Such meat can be kept raw and fresh in cans or plastic containers in warm rooms without spoilage. Such meats are now being tested at Cornell and are proving entirely satisfactory for dogs. One third of the dry matter of the ration is being fed to dogs in the form of ground beef, pork, fish and chicken stew. The beagles like these products and thrive.

Chicken residues will find an ever increasing use in dog feeding but several problems must be solved in the research laboratory. Chicken residues must be freed from stilbestrol, toxic chemicals and the odors of the gastrointestinal contents. Dog owners dare not risk sterility from stilbestrol or injury from toxic chemicals that have been fed to chickens to control parasites. Housewives will not feed evil smelling foods even to dogs.

Canned dog feeds may consist of meat alone or may contain meat cooked with many other products such as cereals, yeast, soybean and fish products. They are often flavored with some product such as garlic which pleases the housewife and is not disliked by dogs. Canned feeds are usually fed to pets but have only a limited use in kennels. In order to compare the chemical composition of canned and dry feeds, one can arrive at a fair approximation by multiplying the analyses of canned feeds by four to account for the water content.

Dry Dog Foods

Dry dog foods consist of two forms, namely, biscuits and meal type. Biscuits are made by baking crude wheat flour mixed into a dough with supplements such as milk, dry yeast, wheat germ, meat scrap, fat, soybean oil meal, concentrates of fat soluble vitamins and calcium supplements. Such biscuits are usually fed to pets but are too expensive for large kennels. They are often sup-



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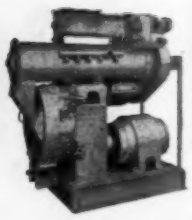

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plemented in feeding with meat, fat and other products. Baking makes them sterile so they can be fed with safety to rodents such as pet mice.

Meal type dog feeds appear in many forms. During the past few years the meals themselves have fallen into lesser use because they contain much powdered material that is difficult for the dog to eat after it is wet. Such powder also leaves the dog pans with residues that are hard to wash out and may sour. Therefore, these meals are now sold in the form of pellets or other forms that are satisfactory when mixed with water.

These meal type feeds are composed mostly of cereals. In the cheapest feeds these come from bread and cookie crumbs. Stale bakery products are ground and sold on a large scale. The chief objection to these is that they vary in composition. One asset is that good bread is good food and cookies may contain some sugar which reduces the volume of excreta of dogs.

In the best of the dry dog feeds the cereal is usually composed of flakes made from corn or wheat or some coarser kibbled product made from corn. These products usually lack the germ and many dog feeds add 2 to 8% of fresh but crude wheat germ. This provides water soluble vitamins, protein and trace minerals. Some corn germ is used in dog feeds, but it has been little studied and needs research before it is increased in use.

Dry dog feeds can use several inexpensive products as sources of vitamins. Dried brewers or torula yeast is widely used at levels of 2 to 5%. Dried distillers solubles are economical and practical at levels up to 7%. The protein of dry dog feeds comes partly from the cereals and partly from supplements such as meat scrap (level used, 15 to 25%), soybean oil meal (used 10%), non-fat dry milk solids (level used, not more than 10%), and low levels of special products such as fish meal, cheese meal and liver meal. These are usually incorporated at levels of 2 to 5%.

New forms of fish meal from which the fat has been extracted are well liked by dogs and may provide some of the protein in dog feeds of the future. Removal of these fats checks rancidity and bad flavors.

Cheese meal is usually added for flavor although some mixtures do not seem to be improved by it.

One or two percent of alfalfa meal is usually included in dry dog feeds. Such feeds also incorporate 1 to 2% of dried tomato pomace which seems to prevent both diarrhea and constipation. Other fibrous products such as apple pomace and that from beets do not function in the same way. Citrus residues are better, but inferior to tomato pomace which is the best that has been discovered thus far.

Most dry dog feeds have excess calcium from the bone meal and meat scrap. A dog needs about 0.3% of calcium in its diet, but most feeds have several times this amount.

Dogs need only about 0.2% of salt in their diet. This is usually iodized since dogs suffer from goiter.

Many dry dog feeds add melted tallow to bring the fat level up to 8 or 10%. Very hard, hydrogenated fats are poorly utilized by dogs and should not be used.

Much money is wasted in dog feed manufacture by adding supplements that are untested and not needed. Some of these are synthetic flavors, antibiotics and special vitamin supplements. Concentrates of fat soluble vitamins are needed by dogs and are usually added in the form of a stabilized product to provide vitamins A and D. Irradiated yeast is also used as a source of vitamin D.

Small feed manufacturers who start in the production of dog feeds need to be very careful in preparing dog feeds in mixers that have been used for poultry feeds. Some of the chemicals put into poultry feeds to control parasites are very toxic for dogs. Some modest dog feed enterprises have been injured by poisoning of dogs from residues of chicken feeds.

Although dogs suffer as much as poultry from internal parasites, only a few medicated feeds have been produced. Since the number of puppies handled is small in comparison with the numbers of the poultry industry, puppies are usually treated as individuals. Sanitation of kennels is easier to control than it is for poultry.

The dog industries have a bright future. The dog feed business will probably expand substantially as the number of pets increases among the children of larger families. The production of dogs is already a large industry operated in small family units. It can be moderately profitable and very interesting as a family enterprise and as a business venture for retired people. The dog feed manufacturer can play an important role in providing complete feeds and in teaching management of kennels.

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One preparation, a compound containing nifuraldezone, has been effective in the prevention or control of infectious calf scours, and the other, furazolidone, has given up to a 9.3% increase in weight gain when fed to swine as a feed additive.

In the calf scour studies, 20 bull calves were divided into two groups and inoculated with a virulent culture of material taken from a calf which had died from scours. Ten of the animals were then treated immediately by mouth with the nifuraldezone compound, while the other 10 were not treated until signs of scours were evident.

The 10 receiving immediate treatment showed no evidence of the disease. Of the other 10, one showed no symptoms, five died of the disease (some without showing any symptoms) and four became ill but recovered.

Furazolidone was fed to fattening pigs at the rate of 10, 15 and 50 grams per ton of feed. All pigs in the medicated groups made greater weight gains than did the unmedicated controls, with the group receiving 50 gm. per ton making the highest daily gain. Greatest feed efficiency was found where furazolidone was the feed additive. No adverse effects were noted.

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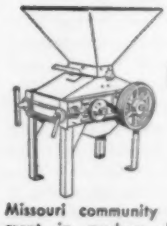

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Corn in Hybrids Now Totals 93.8%

WASHINGTON — Corn planted with hybrid seed in the U.S. increased 1.4 million acres this year, according to a report from the U.S. Department of Agriculture crop reporting board.

The percentage of total corn acreage planted with hybrids moved up to 93.8% from 92.5% last year and 91.1% in 1956.

The commercial corn area in the north central states has been planting nearly all the corn acreage with hybrids for a long period, the report said. Most of the north Atlantic and mid-Atlantic states are also planting 95 to 99% with hybrid varieties.

Greatest increases recently have been in the Carolinas and Georgia, where the upward trend has been around 5 to 10% each year. The 1957 plantings in North Carolina were 85% of the total corn acreage, South Carolina had 71.5% and Georgia 81%, according to the report.

In the south central area, the percent planted with hybrids continues to increase. This year the percentages are: Kentucky, 95.5%; Tennessee, 83%; Alabama 84%; Arkansas, 83%; Oklahoma, 81%; Texas, 85%; Mississippi and Louisiana, each 64%.

The Pacific states and Idaho have been planting from 90% to nearly all of the corn acreage with hybrids in recent years, but the proportion is much lower in most of the Rocky Mountain states. Colorado, with the largest corn acreage in the West, planted hybrids on 80.5% of the acreage this year. This is an increase of five points over a year ago.

Use of hybrid corn over the nation has increased from 0.1% of the acreage in 1933 to the 93.8% this year. In only one year, 1950, was the percentage less than the year preceding. The percentage dropped from 78.3 in 1949 to 78 in 1950, but then continued its steady upward trend.

Mortality-Free Flocks Averaging 300 Eggs Predicted for Future

UNIVERSITY PARK, PA. — Mortality will no longer be a problem in the laying flock of the future, according to Max M. Brender, Ferndale, N.Y., poultry breeder who spoke recently before the annual Poultry Breeders Conference at Pennsylvania State University.

Most hens will live a full life span of 1½ to 2 years in future flocks, and they will average 300 eggs and more, he predicted.

"The egg size of the future will begin close to large eggs and will remain large through the entire laying life of the birds," Mr. Brender said. "Under good management and nutrition practices, fertility and hatchability will approach 100%. The efficient, economical feed converter of the future will weigh somewhere around 4 to 4½ lb. at maturity."

Tomorrow's freshly-laid egg will be high AA, it was pointed out. Quality eggs will be free of blood and meat spots and will be encased in smooth, hard shells. Nutrition will play an important part, and will also provide a uniform-colored egg yolk.

Chick Mortality

Mr. Brender claimed chick mortality in the brooder can be eliminated. His company had only 186 losses out of 7,148 chicks hatched in tests—an average of 2.6% mortality. Nineteen out of 65 sires tested had less than 1% chick mortality. Five of the sires had no chick mortality.

"The job is to eliminate families which produce high adult mortality," Mr. Brender said. "We must discover and work with those families which gave little or no losses. Where there is one sire whose daughters will live 100%, eventually we can reach 100% 'livability' for all pullets housed."

The poultry breeder said he already has a strain of Holland ducks, called "Khaki Campbells," which lay bigger eggs than Leghorn hens, at a rate of nearly one egg a day. These ducks weigh about 4 lb.

Mr. Brender said he has trapped a number of hens who laid more than 350 eggs a year. The highest number of eggs laid by a hen on his farms was 359.

"The egg layer of the future will be a cross between a number of pure strains," he claimed. "This hen will be a healthy, vigorous strain-cross-hybrid. She will be as uniform as if machine-produced. Her desirable genes will complement one another and her bad genes will be bred out, or subdued. The strain-cross-hybrid is here to stay—unless a 'mutation' or 'sport' pops up to out-perform the hybrid," he predicted.

Blood Grouping

Courtney P. Allen, Hy-Line Poultry Farms, Johnston, Iowa, discussed the importance of blood grouping with the poultry industry.

"The impact of blood groups upon the poultry industry will not be fully felt for several years," Mr. Allen pointed out. "Knowledge of blood groups is an effective new aid to poultry breeding, capable of producing some startling results. However, the knowledge of blood groups used alone will not guarantee a superior laying hen," he added.

Mr. Allen reported hundreds of known blood types exist among chickens, compared to just a few among human beings.

Dr. F. B. Hutt, geneticist at Cornell University, illustrated his talk on "The Quest for Hybrid Vigor" with slides showing data on pureline, two-way, and three-way crosses.

Dr. J. E. Wright, geneticist of Pennsylvania State University, explained the fundamental principles of genetics in determining the presence of multiple alleles. Dr. Wright's presentation set the stage for Mr. Allen's talk on blood typing.

ROBERT WINN DIES

NEPHI, UTAH—Funeral services for Robert Winn, 85, co-owner of the Nephi Mill & Manufacturing Co., were held recently. He had spent most of his life in Nephi and had worked at milling and grain buying from the age of 16 to 75. Survivors include two sons, two daughters, several grandchildren and great-grandchildren as well as two great-great-grandchildren.

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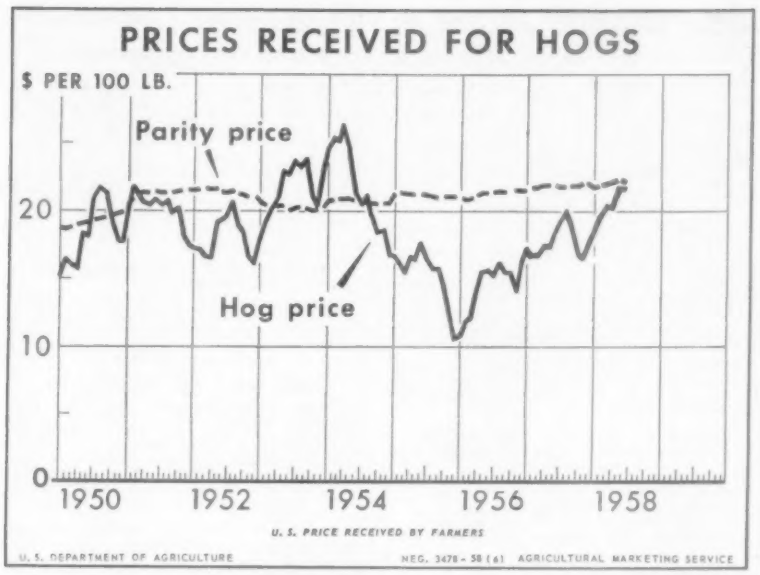


HOG PRICE COMPARISONS NOTED—The eight-year span of hog prices, showing the ups and downs and seasonal variations, is shown here on the latest U.S. Department of Agriculture price chart.

OUTLOOK

(Continued from page 1)

year over 1957 and producers' reported intentions for farrowing 13% more sows this fall, with anticipated larger litters resulting in a 14% increase in fall pigs, over 1957.

Prices for hogs are expected by USDA to decline seasonally from the early-summer peak. Late in June the average price of barrows and gilts at eight markets was $24.58 cwt., up $4.25 from January and $4 above a year ago. A late-summer price adjustment could be fairly sharp if marketings of early spring pigs should be bunched. However, a more gradual decline throughout late summer and fall is the more likely prospect, and prices for the fall as a whole will probably average near those of last fall—possibly a little above.

In total, however, if the fall pig crop should be 41.5 million head as now indicated, the combined pig crop for 1958 would be 94.2 million. Such a crop, says USDA, would be 7% above 1957, but only 5% more than the 1947-56 average.

Into 1959, a 14% increase in the 1958 fall pig crop would mean a substantially lower price for hogs in the spring and summer next year and, even more importantly, a continued uptrend in production through the spring pig crop of 1959 could bring on excessive and severe price adjustments in the fall of 1959, USDA forecasters fear.

There are four factors which could keep price declines from being severe, however, they feel. These are: (1) The fall crop is the smaller of the two annual crops, and hogs from it reach market at a time when pork output is seasonally smaller; (2) cold storage stocks this winter will doubtless be kept smaller than usual, offsetting some of next spring's increase in current pork production; (3) the increase in pork output will begin from the lowest level relative to population in several years, and (4) beef output will remain cyclically small in 1959.

Economist's View

On the other side of this situation is a word of caution offered by L. H. Simerl, University of Illinois agricultural economist. He points out that high-priced hogs and low-cost feed encourage feeding hogs to heavy weights, but there is no assurance that the high prices can be maintained through this summer.

He has suggested these aspects be considered: (1) Hog marketings usually increase after July 4; (2) January-February farrowings were the largest on record—16% more than last year and 46% greater than the 10-year average; (3) market supplies of broilers will be 20 to 25% larger during July-September than they were last year; (4) cattle have been held back for about a year, and marketings may increase soon, and (5) there is a lot of talk about business recovery, but unemployment is around 6 million and is the largest since before World War II. A large group of families must spend cautiously for awhile yet.

BEEF: The reduced slaughter rate of beef cattle, plus demand by farmers for feeding and breeding stock, has given a strong boost to cattle prices, USDA observes. By mid-May the average price received by farmers for beef cattle had increased $5.70 cwt. from last October, and was $5.50 above a year earlier. The average May price received was 99% of parity, the highest ratio in nearly six years.

By mid-June, however, the average price received by farmers for beef cattle was down 80¢ cwt. from May. Late in June the average price of choice slaughter steers at Chicago was $28.23, down $2.30 from this year's peak in March but $4.50 above a year ago.

USDA sees some small further decline in fed cattle prices this summer as marketings surpass last year's levels. Declines will likely not be large if marketings are not bunched, as they will not coincide with heavy marketings of other meat animals. Some price recovery is possible by the end of the year.

Feeder Cattle

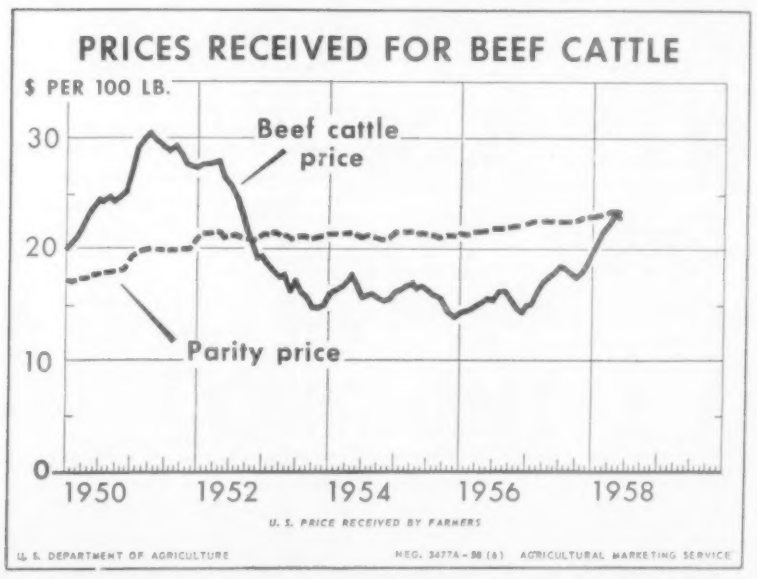
As for feeder cattle, USDA reports that prices trended steadily upward in the first four months of this year but turned downward in June. The average cost of feeder and stocker steers at Kansas City including all weights and grades, late in June, was $25.32 cwt., $2.50 below the May high but $2.30 above January and over $5.50 above a year ago.

Some seasonal decline in feeder cattle prices may come about during coming months, USDA predicts. This is the normal price movement and lower fed cattle prices will likely lessen the demand for feedlot replacements. However, profits in cattle feeding this past winter have been generally satisfactory, and producers are apparently optimistic about the outlook for cattle. Hence, says USDA, further reductions will probably be small and feeder prices will probably continue considerably above a year earlier during most or all of 1958.

LAMBS: Changes in lamb slaughter and prices during the rest of the year will be largely seasonal, said USDA, although modified by price changes for other meat animals and probably by some withholding from slaughter for restocking flocks.

In contrast to the usual pattern of an uptrend during the first half of the year, the average price received by farmers for lambs declined beginning early this year, but recovered some of the loss in recent weeks. The average June price was $21.20 cwt., 80¢ lower than in February but about $1 above last June, USDA reported.

The 1958 lamb crop report will be released July 24, but is expected to show a small gain as the number of breeding ewes on hand Jan. 1 was up slightly. Prices this fall may average close to last fall.



CATTLE PRICE UPTREND—The strong boost given cattle prices by lower numbers at the same time farmers were demanding cattle for feed lots and for breeding stock, is indicated in the above USDA beef cattle price chart covering the period from 1950 to 1958, to date.

Western Group Seeks Cattle Import Quotas

SAN FRANCISCO — A resolution to control and regulate the importation of New Zealand and Australian livestock and dressed meat into the U.S. was passed by members of the Amador-El Dorado-Sacramento County Cattlemens Assn. at a recent meeting.

The resolution is being actively publicized. It states that considerable numbers of beef animals are being imported into the U.S. and that there are expected to be more in the future, especially from New Zealand and Australia. It maintains further that there is no shortage of cattle in the U.S. and that the present tariff rates and import quotas are now obsolete and not high enough to properly regulate the flow of livestock and dressed meat into this country.

The secretary of agriculture may increase tariff rates and impose quotas on importations when these become detrimental, the statement said, and it urged that Secretary Ezra Taft Benson impose import quotas on all livestock and dressed frozen beef entering this country as soon as possible.

New Egg Promotion Plan Described by PENB's Lloyd Geil

CHICAGO — An expanded public relations and promotion program on eggs, based on the findings of a motivation research study, has been announced by Lloyd H. Geil, general manager of the Poultry & Egg National Board.

The PENB egg division pin-points five population groups as primary targets which offer the greatest potential for sales of eggs. These groups, selected by study of market potential, include: 50 million homemakers, 34 million overweight people, 18 million teenagers, 76 million restaurant patrons and 11 million industrial workers in plants where food is served.

Media being used to reach these groups include daily and weekly newspapers, wire services, feature syndicates, radio and television, national magazines, house organs, consumer marketing information agents, college and high school home economics departments, nutritionists, restaurant and hotel operators and school lunch supervisors.

"The expanded program makes extensive use of the findings of our recently concluded motivation research study conducted by the Color Research Institute. The survey was based on a panel of 1,204 persons in representative marketing areas," Mr. Geil said.

Homemaker Group

In regard to the homemaker group, the PENB general manager said, "The motivation research study showed that this group thinks favorably about eggs, but also tends to associate them with children, infants and men, in that order.

"A steady barrage of publicity and promotion materials to broaden this image is being aimed at the housewife through the media which she sees every day—newspapers, magazines, radio and television.

"In addition, some of the promotions are keyed to topical events such as weddings, National Sandwich Month, Dairy Month and National Tavern Month, and to seasonal events such as Halloween, Easter and Christmas."

Mr. Geil pointed out that the low-fat, high-protein story behind eggs is being told to doctors, public health officials, dieticians and nutritionists who influence the eating habits of overweight people.

A special menu planning booklet to show how eggs fit into the weight-control pattern, is being prepared for wide consumer distribution. The booklet takes into account the eating requirements of a normal family, but places special emphasis on its adaptation to those on a reducing diet.

The research study indicated that the teenage group is the most undernourished group in the U.S. PENB counts this a major market with tremendous potential for the consumption of eggs.

Restaurants

The part of the promotion plan directed toward restaurants involves development of fast-cookery suggestions for short order needs, large-quantity recipes and electronic cookery information to make volume food preparation easier and more profitable. New methods and advantages of using eggs in quantity cookery will be publicized through the restaurant industry's trade press and in special mailings to restaurant organizations.

To reach the workers in industrial plants where food is served, PENB is working with cafeteria managers and editors of company house organs.

Several specialized promotions and publishing efforts are also a part of the over-all program.

THE FEED MARKETS

★ ★ ★ ★

Demand — Supply — Trends — Prices

Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.) 300 ICU, 750 A 13⅛@15⅛¢, 1,500 A 15⅛@17¢, 2,250 A 17⅛@20¢, 3,000 A 19⅛@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19⅛¢, 3,000 A 20@21¢; f.o.b. Massachusetts, New York or Pennsylvania.

Boston: Demand light; supply good; 600 D, 1,500 A 18¢ lb.; 300 D, 2,250 A 18⅛¢ lb.; 300 D, 1,500 A 17¢ lb.; 300 D, 750 A 15⅛¢ lb.

Minneapolis: 10,000 A 35¢ lb.; 300 D, 3,250 A 21⅛¢ lb.; 300 D, 1,500 A 20⅛¢ lb.; 300 D, 75 A 18⅛¢ lb.

Chicago: Demand fair; supply adequate; straight A feeding oil with 10,000 units vitamin A per gram 7@8¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

Seattle: Demand slow; trend steady; supply good; 300 D, 2,250 A 22¢ lb., 300 D, 1,500 A 19¢ lb., 300 D, 750 A 17¢ lb., all ex-warehouse, drums included.

ALFALFA MEAL

Ft. Worth: Demand fair on dehydrated, slow on suncured; supply sufficient on dehydrated, limited on suncured; new crop 17% protein, Texas dehydrated $40, f.o.b. plants central Texas; Kansas dehydrated 17%, 100,000 A $46.05@47.05 rail; suncured No. 1 13% protein, ¼-in. grind, truck $37.

Boston: Demand spotty; supply fair; dehydrated, 17% $53; suncured, 13% $46.

Cincinnati: Demand poor; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $46.20@47.20.

Kansas City: Demand good; trend stronger; supply adequate, although offerings are not heavy, supplies of top quality material are limited; 17% protein, 100,000 units vitamin A meal, sacked $35@38; 18% protein, 125,000 units vitamin A meal, sacked $39@43; 17% protein, 100,000 units A pellets, bulk $31@33; 17% protein, 100,000 units A reground pellets, sacked $36@38; suncured: No. 1 fine ground, sacked $33.50@35; No. 1 ¼-in., sacked $31.50@33; No. 2 ¼-in., sacked $27.50@31.

Omaha: Demand spotty; supply adequate; 17%, 100,000 A units, bulk pellets $31, Omaha basis; sacked meal $36, Omaha basis.

Memphis: Demand fair; trend higher; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $43.

Philadelphia: Demand slow; trend unsettled; supply fair; new 17% dehydrated $53.

Los Angeles: Demand fair; trend unchanged; supply adequate; dehydrated pellet meal, 17% protein, 100,000 A $50@51; dehydrated meal, 17% protein, 100,000 A $49; suncured crumbles, 15% protein $44@46; suncured meal, 15% protein $42@44.

Minneapolis: Steady trend; good demand; adequate supply; 17% dehydrated, 100,000 units vitamin A, reground pellets $43; granules, bulk $41; oiled, reground pellets, bulk $43.

Chicago: Demand fair; supply adequate; 17% dehydrated, with 100,000 units vitamin A guaranteed $42@42.50.

Buffalo: Demand poor; trend steady; supply adequate; $55, sacked, Boston.

St. Louis: Demand slow; trend steady; supply ample; 13% fine suncured $41; dehydrated, 17%, 100,000 units A $41.50.

Seattle: Demand fair; trend firmer; supply good; 15% protein suncured $42, delivered, truck loads; 136,000 A unit dehydrated $68, delivered, truck loads.

New Orleans: Demand fair; trend steady; supply ample; $48@50; pellets $44@45.

ANIMAL FATS (STABILIZED)

St. Paul: Strong demand and limited supplies boosted price for bleachable fancy tallow to 8¢ lb., f.o.b. producers' plants.

Louisville: Demand slow; trend firm; supply good; bleachable fancy 8¢ lb.; white tallow 8¼¢ lb.; yellow grease 6¾¢ lb.

Kansas City: Demand fairly good to very good; trend steady to stronger; supply fair; 7¾¢ lb., tank car.

Ft. Worth: Demand good; supply light; prime tallow, tank cars 8¢ lb.; drums 9½¢ lb., f.o.b. north Texas packing plants with returnable drums.

New Orleans: Demand good; trend steady; supply moderate; 7⅝@8¢ lb., tank cars.

Chicago: Demand good; supply short; bleachable fancy tallow, tank truck or carlots 8¢ lb.; yellow grease 7¼¢ lb.

San Francisco: Demand fair; supply ample; bleachable fancy 8⅛¢ lb.; yellow grease 7⅛¢ lb.

BARLEY FEED

Philadelphia: Demand slow; supply fair; pulverized $45.

Los Angeles: Demand steady; trend firmer; supply ample; standard rolled $3.05 cwt., sacked; standard ground $3.05 cwt., sacked.

Ogden: Supply normal; rolled $43@47; whole barley $36@41.

Milwaukee: Demand good; supply fair; needles 96¢@$1.10 cwt.; ground screenings $27, sacked.

Boston: Demand slow; supply light; $45.

San Francisco: Demand fair; supply ample; rolled $59; ground $58.

Baltimore: Demand good; supply light; $47.

Chicago: Demand good; supply light; $36.

Seattle: Demand fair; trend firmer; supply good; $46, bulk, delivered, truck lots (new crop).

New Orleans: Demand slow; trend steady to easier; supply light; $63@65.

BENTONITE (SODIUM)

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: 80 granular $30.21; 200 mesh fine $29.96.

Chicago: Demand steady; supply adequate; f.o.b. Wyoming and South Dakota shipping points; granular 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50; f.o.b. Belle Fourche, S.D., minimum 30-ton carlots; 80 granular $13.50 net; 200 mesh fine $13.25 net.

BLOOD FLOUR

Louisville: Demand good; trend strong; supply light; $117.50@122.50 or more; very unsettled and very active.

BLOOD MEAL

Los Angeles: Demand good; trend unchanged; light offerings; $7.50 a unit of ammonia.

Ogden: Supply average; $115 in 100-lb. bags, f.o.b. Ogden.

Louisville: Demand good; trend strong; supply tight; $117.50@122.50 or more; very unsettled and quite active.

San Francisco: Demand good; supply tight; $7.25 a unit of ammonia.

New Orleans: Demand fair; trend steady; supply ample; $113@119.

Chicago: Demand fair; supply tight; $140 @150, guaranteed 80% protein.

New Orleans: Demand fair; trend steady; supply normal; $86@87.

BONE MEAL (STEAMED)

Louisville: Demand and trend strong; supply light; $100@110.

Los Angeles: Demand fair; trend steady; supply adequate; imported $66.50 in 20-ton lots.

San Francisco: Demand good; supply ample; $75.

Boston: Demand and supply steady; $88 @90.

Cincinnati: Demand fair; trend steady; supply fair; $100, sacked, Cincinnati.

Ft. Worth: Demand fair; supply adequate; $85, sacked, f.o.b. Ft. Worth, local manufacture.

Buffalo: Demand fair; trend steady; supply good; $90.

Seattle: Demand steady; trend easy; supply good; $82.50, ex-dock, truck lots.

Chicago: Demand fair; supply tight; $85 @95.

BREWERS DRIED GRAINS

Ft. Worth: Demand fair; supply moderate; 26% $49.65, delivered Ft. Worth.

San Francisco: Demand fair; supply ample; $54.

Boston: Demand fair; supply adequate; 26% $53; 22% $52.50.

Cincinnati: Demand poor; trend steady; supply adequate; $52.

Los Angeles: Demand steady; trend unchanged; supply limited; $49 bulk, $53 sacked.

Philadelphia: Demand dull; supply very light; $56.

Milwaukee: Demand good; supply fair; $45.

Louisville: Demand good; trend strong; supply fair; $47; better demand due to shortage of distillers dried grains for use of feed mixers; most of product moving South and Southeast.

New Orleans: Demand slow; trend steady; supply ample; 26% $48@51.

St. Louis: Demand slow; trend lower; supply good; $43.

Chicago: Demand fair; supply adequate; 26% $44.50.

Buffalo: Demand and supply fair; trend steady; $48, bulk, Boston.

BREWERS DRIED YEAST

San Francisco: Demand fair; supply good; 10¢ lb.

Boston: Demand and supply steady; 10¢ lb.

Omaha: Demand fair; supply ample; 11¢ lb., Omaha.

Los Angeles: Demand steady; trend unchanged; supply limited; 10¢ lb. in 5-ton lots; 11¢ lb. in less than 5-ton lots.

Louisville: Demand slow; trend steady; supply ample; 10@10⅛¢ lb.

Chicago: Demand good; supply limited; 10@11⅛¢ lb. in carlots; 10¼@12⅛¢ lb., l.c.l.

Buffalo: Demand fair; trend easy; supply ample; $9.65.

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

St. Louis: Demand good; supply limited; 10¢ lb. in carlots; 11¢ lb. in ton lots; 12¢ lb. in less than ton lots.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb.

New York: Carlots 9⅛¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10⅛¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

Milwaukee: Demand good; supply limited; 10⅛@11⅛¢ lb. in carlots; 10⅝@12⅛¢ lb., l.c.l.

BUTTERMILK-CONDENSED

Boston: Demand slow; supply light; 3½¢ lb.

San Francisco: Demand fair; supply good; $5 cwt.

Philadelphia: Demand dull; supply light; $4.25 cwt.

Los Angeles: Demand fair; trend unchanged; supply adequate; $5.25 cwt. in 100-lb. lots; $4.25 cwt. in 500-lb. lots.

Ogden: Supply average; $4.40, 100-lb. drum.

Wichita: Demand good; supply insufficient; $2.75, 100-lb. barrel.

Louisville: Demand very dull; trend steady; supply nominal; $4.25 cwt.

Chicago: Demand slow; supply adequate; $3.25@3.50 cwt. in carlots.

New Orleans: Demand dull; trend steady; supply ample; $4@4.25 cwt.

CALCIUM CARBONATE

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Los Angeles: Demand good; trend unchanged; supply adequate; $10.25.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

Chicago: Demand steady; supply adequate; fine grind, plain $9.67; bulk, in hopper cars, fine grind $7.67; bulk, in boxcars $8.17; granular grind $1 premium.

Minneapolis: Fine grind, 50-lb. bag $12.25, 100-lb. bag $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight and tax)

New York: Crystals $15.30, flour $10.30.
Buffalo: Crystals $16.16, flour $11.16.
Toledo: Crystals $18.06, flour $13.06.
Boston: Crystals $16.69, flour $11.69.
Limecrest, N.J.: Crystals $10.50, flour $5.50.

CHARCOAL

Los Angeles: Demand steady; trend unchanged; supply ample; hardwood poultry $156 sacked in less than ton lots; $144.50 sacked in ton lots.

Boston: Demand and supply light; $100.

San Francisco: Demand steady; supply ample; $141.

Cincinnati: Demand good; trend steady; supply adequate; briquets $120, 25-lb. bags, f.o.b. warehouse, Cincinnati.

Chicago: Demand quiet; supply adequate; poultry charcoal $106 in 50-lb. multiwalls.

COCONUT OIL MEAL

San Francisco: Demand fair; supply ample; solvent $53; expeller $64.

Los Angeles: Demand fair; trend firm; supply limited; copra cake $66@66.50.

Seattle: Demand and trend steady; supply limited; $68.50, truck lots (Canadian).

COD LIVER OIL (FORTIFIED)

Boston: Demand fair; supply good; f.o.b. New York, 600 D, 2,250 A 21¢ lb.; 300 D, 2,250 A 20¢ lb.; 300 D, 1,500 A 17½¢ lb.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.) 300 ICU, 750 A 14⅛@15⅛¢, 1,500 A 16⅛@20¢, 2,250 A 18⅛@21¢, 3,000 A 21⅛@23¢; 600 ICU, 1,500 A 17⅛@19⅛¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

New York: Demand and supply fair; trend steady; 4¼@4⅝¢ lb., f.o.b. eastern shore.

Los Angeles: Demand steady; trend unchanged; supply limited; $5@5.25 lb.

Boston: Demand good; supply short; 5¢ lb. nominal.

New Orleans: Demand light; trend slow; supply limited; $92@95, f.o.b. Gulf.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $47.80, meal $86.80.
Atlanta: Feed $53.95, meal $92.95.
Birmingham: Feed $52.64, meal $91.64.
Boston: Feed $52.84, meal $91.84.
Chicago: Feed $41, meal $80.
Cleveland: Feed $49.14, meal $88.14.
Denver: Feed $51.51, meal $90.51.
Ft. Worth: Feed $49.96, meal $88.96.
Indianapolis: Feed $46.36, meal $85.36.
Kansas City: Feed $41, meal $80.
Louisville: Feed $48.21, meal $87.21.
New Orleans: Feed $51.20, meal $90.20.
New York: Feed $52.43, meal $91.43.
Norfolk: Feed $51.71, meal $90.71.
Philadelphia: Feed $52.02, meal $91.02.
Pittsburgh: Feed $49.96, meal $88.96.
St. Louis: Feed $41, meal $80.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $50.18.

COTTONSEED OIL MEAL

Cincinnati: Demand poor; trend steady; supply adequate; solvent $75; old process $77.

Boston: Demand and supply fair; $84.

Kansas City: Demand fair to good; trend firmer; supply limited, old process sacked, adequate, solvent, sacked; old process meal $70.50@73, delivered, sacked, Kansas City from west Texas; solvent meal $64@65, delivered, Kansas City.

San Francisco: Demand good; supply ample; expeller $55; solvent $62.

Ft. Worth: Demand improved for cottonseed meal, but nil for hulls; very limited offerings old process, sufficient on solvent; carlots, 41% old process $62.50, f.o.b. central Texas; solvent 41% low gossypol $59.80, delivered Ft. Worth; pellets $2 additional; cottonseed hulls $19.50@22, delivered Ft. Worth.

Ogden: Supply normal; 41% $65@70.

Los Angeles: Demand slow; trend unchanged; supply ample; local production, 40% protein $54@55.

Wichita: Demand slow; supply ample; 41% old process $62.

Omaha: Demand good; supply ample; 41% solvent $63, bulk, delivered Omaha basis.

Memphis: Demand dull; trend steady; supply thin; prime 41% protein, old process $65, sacked; new process, 41% solvent $62.50, sacked.

Philadelphia: Demand dull; supply light; $82.50.

Atlanta: Demand good; trend strong; supply limited; 41% $77, sacked, immediate.

New Orleans: Demand slow; trend steady; supply adequate; $79@80.

Seattle: Demand and supply fair; trend strong; $69, delivered, truck lots, 41% expeller process.

Chicago: Demand fair; supply tight; hydraulic $78.50; solvent $75.

St. Louis: Demand fair; trend steady; supply limited; $69.

Buffalo: Demand fair to poor; trend steady to higher; supply adequate; $85.50, sacked, Boston.

CURACAO PHOSPHATE

New York: Trend steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL, POWDERED

New York: Trend steady; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums, 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

Kansas City: Demand fair; trend steady; supply ample; 1,500 ICU 9⅛@10¢ lb.; 3,000 ICU 11⅛@12¢ lb. in ton lots or larger.

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

D ACTIVATED PLANT STEROL, POWDERED

Chicago: Demand good; supply moderate; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots; less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb.; ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: Minimum phosphorus 13%, minimum calcium 31%, maximum fluorine .12%, $51 net ton, f.o.b. Tupelo in 100-lb. multiwall bags, $48 in bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum calcium 36%, maximum fluorine .18% $69.12 net ton, f.o.b. Wales, in 100-lb. multiwall bags, $3 less in bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $69.50 net ton, f.o.b. Houston, 100-lb. multiwall paper bags: $66.50 in bulk.

Coronet, Fla.: Minimum phosphorus 17%, minimum calcium 34%, maximum fluorine .17%, carload $60, truckload $60.75, net ton, f.o.b. Coronet in 100-lb. multiwall bags, $57 and $57.75 in bulk.

Cincinnati: 18% phosphorus $81, sacked; 13% phosphorus $64.95, sacked, f.o.b. Cincinnati.

DICALCIUM PHOSPHATE

Texas City, Texas: 18.5% minimum phosphorus, 25% minimum calcium, 28% maximum, 0.11% maximum fluorine, granular $77.70 net ton, f.o.b. Texas City in 100-lb. multiwall bags; bulk, boxcars and hoppers, $3 net ton less than bagged material.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb., $93.25; 21% phosphorus, 20,000 lb. or more, $94.50, basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $3 net ton less than bagged material.

Bonnie, Fla.: Minimum phosphorus 18½%, granular $83.25; freight equalized with closest producing point, carload basis.

Minneapolis: 18.5% phosphorus, 24% calcium granular or fine ground $94.10, delivered: $3 less in bulk.

Trenton, Mich.: Minimum phosphorus 18½%, maximum fluorine .03% guaranteed $83.25, f.o.b. Trenton in 100-lb. multiwalls; minimum phosphorus 21%, maximum fluorine .02% guaranteed $94.50, f.o.b. Trenton in 100-lb. multiwall bags.

Cincinnati: 18½% phosphorus $92@93.

DISTILLERS DRIED GRAINS

Boston: Demand poor; supply scarce; one offering of dark at $79.05.

San Francisco: Demand fair; supply ample; solubles $85.

Cincinnati: Demand poor; trend steady; supply fair; by truck $62.50.

Louisville: Demand strong; trend nominal; none available; last quotations: bourbon grains: light $60, dark $62, solubles $77; distilleries down for July, some large ones will start up in August.

Buffalo: Demand good; trend steady to higher; supply poor; $71, bulk, Boston.

Seattle: Demand fair; trend steady; supply ample; $63, delivered, truck lots.

DRIED BEET PULP

Ogden: Supply average; $38@42.

San Francisco: Demand good; supply fair; $45.61.

Los Angeles: Demand and trend steady; supply ample; molasses $48.

Boston: Demand and supply fair; $67.50.

Milwaukee: Demand good; supply fair; molasses $59; plain $61.

Ft. Worth: Demand slow; supply sufficient; carlots, 50-lb. papers $59, delivered Ft. Worth.

Seattle: Demand slow; trend steady; supply good; $45, delivered, carlots.

Buffalo: Demand limited; trend higher; supply poor; $70, sacked, Boston.

Atlanta: Demand fair; trend steady; supply limited; $66.80, immediate.

New Orleans: Demand slow; trend steady; supply ample; $52@56.

DRIED BUTTERMILK

Boston: Demand good; supply tight; 11¢ lb.

San Francisco: Demand fair; supply ample; 11¢ lb.

Los Angeles: Demand good; trend steady; supply limited; $11 cwt.

Ogden: Supply average; $7.25, 100-lb. bag.

Milwaukee: Steady trend; fair demand; fair supply; $10 cwt.

Louisville: Demand slow; trend steady; supply normal; 11@12¢ lb.

Chicago: Demand and supply fair; medium acid $9.75@10.25; sweet cream $10@10.50 cwt., in carlots.

Buffalo: Demand good; trend firmer; supply limited; $10.95 cwt.

New Orleans: Demand slow; supply adequate; trend unchanged; $9.25@10 cwt.

Minneapolis: Market unchanged; moderate demand; supply scarce; $9.75@10 cwt.

DRIED CITRUS PULP

San Francisco: Demand good; supply fair; meal $52.

Los Angeles: Demand good; trend steady; supply light; orange pulp: $39 bulk, $44 sacked; lemon pulp: $37 bulk, $42 sacked.

Buffalo: Demand limited; trend steady; supply fair; $48.50, sacked, f.o.b. Florida.

Atlanta: Demand good; trend steady; supply limited; $67.50, immediate; meal $50, immediate.

New Orleans: Demand good; trend steady; supply adequate; $48@52.50, f.o.b. Florida.

DRIED SKIM MILK

Los Angeles: Demand fair; trend steady; supply limited; $14 cwt. in less than ton

lots; $13.75 cwt. in ton lots.

Philadelphia: Demand dull; supply light; $12.50 cwt.

Ogden: Supply average; $15.15, 100-lb. drum.

Milwaukee: Demand and supply fair; $11 cwt.

Louisville: Demand slow; trend steady; supply ample; 11½@12¢ lb.

Boston: Demand and supply fair; 11¢ lb. in carlots.

San Francisco: Demand and supply fair; 13½¢ lb.

Cincinnati: Demand fair; trend steady; supply adequate; 10@11¢ lb.

New Orleans: Demand slow; trend steady; supply ample; $12@12.50 cwt.

Minneapolis: Market unchanged; good demand; tight supply; $10.75 cwt.

Buffalo: Demand good; trend steady; supply ample; spray $10.65 cwt.; roller $11.50 cwt.

Chicago: Demand improved; supply tightening; $10.50 cwt. in carlots.

DRIED WHEY

Cincinnati: Demand fair; trend steady; supply adequate; $5.35 cwt.; sweet $5.75 cwt.

Kansas City: Demand fair; trend steady; supply adequate; $5.25 cwt., producers' points for both regular and partially delactosed, with regular in limited supply because of light production.

San Francisco: Demand steady; supply good; $5.50 cwt.

Ft. Worth: Demand fair; supply adequate; carlots, standard $6 cwt., sacked, delivered Ft. Worth or any Texas points or in ton lots, f.o.b. warehouse, Ft. Worth.

Boston: Demand steady; supply plentiful; $5.75 cwt. in carlots.

Ogden: Supply normal; $6.90, 100-lb. bag.

Los Angeles: Demand steady; trend unchanged; supply ample; $5.90 cwt. in carloads; $6.15 cwt. in l.c.l.

Philadelphia: Demand dull; supply light; $6.25 cwt.

Louisville: Demand slow; trend firm; supply ample; 6@6½¢ lb.

Seattle: Demand and trend steady; supply good; $6.40 cwt., ex-warehouse, l.c.l.

Minneapolis: Steady trend, moderate demand; tight supply; $5.40@5.60 cwt.; other sources quote $5.25 cwt., f.o.b. producers' plants for both regular and partially delactosed.

Chicago: Demand good; supply fair; $5.25 cwt., f.o.b. plant.

New Orleans: Demand slow; trend firm; supply ample; $6@6.25 cwt.

FEATHER MEAL (HYDROLYZED)

Ft. Worth: Demand good; supply very limited; 85 to 87% protein $95, f.o.b. trucks, north Texas plants.

Los Angeles: Demand very good; trend unchanged; no offerings; $1.28 a unit of protein.

Boston: Demand good; supply light; $95, f.o.b. eastern shipping points.

Salisbury, Md.: Firm trend; good demand; tight supply; $95, bulk, f.o.b. producers' points.

Atlanta: Demand good; trend strong; supply limited; $94, sacked, immediate, f.o.b. Alabama and Georgia producing points.

FISH MEAL

Ft. Worth: Demand good; no offerings of menhaden because of repeated squalls in Gulf and poor fishing; imported supplies extremely light and sold in advance of arrival.

Boston: Demand and supply steady; $130 in carlots; $133, l.c.l.

San Francisco: Demand fair; supply ample; Peruvian fish meal $2.22½ a unit of protein.

Cincinnati: Demand fair; trend steady; supply adequate; 40% $160.

Louisville: Demand slow; trend strong; supply ample; $150@160.

FEED INGREDIENTS
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Los Angeles: Demand limited; trend unchanged; supply light; local production, 60% protein $2.30 unit.

Ogden: Supply normal; $2.20 a unit, f.o.b. Coast; 65% $151@153.

Milwaukee: Demand good; supply fair; 60% $157, Milwaukee.

Atlanta: Demand good; trend steady; supply limited; 60% $143, sacked, subject to production.

Buffalo: Demand good; trend firm to higher; supply fair; 60% protein, menhaden $140 bulk, $145 sacked.

Chicago: Demand good; supply very limited; eastern menhaden fish meal, 60% protein $130@133; western blended, 60% protein, no offerings; Gulf $132; Northwest herring-salmon blend, no offerings; Canadian herring, 73% protein $2.20 a unit of protein, subject to production.

Minneapolis: Steady trend; good demand; rather tight supplies; 60% $154; herring $2.30 a unit, West Coast.

Seattle: Demand good; trend steady; supply limited; $2.35 a unit protein, ex-dock, Alaska herring.

New Orleans: Demand light; supply limited; trend steady; menhaden 60% $134.50 @135.50; scrap $129@131, f.o.b. Gulf.

HAY

Ogden: Supply normal; $1 bale; $12 in the field.

Los Angeles: Demand very slow; trend weaker; supply ample; U.S. No. 1 $29@31; U.S. No. 2 leafy $26@28; U.S. No. 2 green $26@27; U.S. No. 2 $24@25.

Philadelphia: Demand dull; supply light; $32@35.

Louisville: Demand dull; trend steady; supply good; No. 1 hay, any variety of local $23@25; No. 2 hay, any variety of local $20@23; straw $18@20; July pastures best in many years; demand good for straw.

Wichita: Demand poor; supply adequate; prairie $12, alfalfa $12.

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 timothy $23.50; No. 1 red clover $25; No. 1 second cutting alfalfa $27; No. 1 clover and timothy mixed $27; wheat or oat straw (new) $20.

Ft. Worth: Demand fair for alfalfa, practically all for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $36@38, No. 2 $36; prairie, No. 2 $26@28; No. 2 Johnson grass $24@26, delivered Texas common points.

Boston: Demand and supply seasonally steady; old crop $38@40.

Seattle: Demand slow; trend easy; supply good; alfalfa, U.S. No. 2 green $24, delivered, truck lots.

HOMINY FEED

Boston: Demand fair; supply adequate; $61.

Cincinnati: Demand good; trend higher; supply adequate; $54.50.

Kansas City: Demand fair to good; trend steady; supply tight for nearby; yellow $44 bulk, $2.50 more for sacks.

Memphis: Demand nil; trend steady; supply ample; white $56, yellow $56.

Milwaukee: Demand good; supply tight; $59, sacked, Milwaukee, August shipment.

Buffalo: Demand and supply fair; trend steady; $57.50, bulk, Boston.

Chicago: Demand fair; supply adequate; $52.

St. Louis: Demand fair; trend higher; supply limited; yellow $52.50.

Seattle: Demand fair; trend steady; supply limited; $62, delivered, sacked, car lots.

New Orleans: Demand slow; trend weak; supply light; $54.50@55.25.

LINSEED OIL MEAL

Kansas City: Demand good; trend steady; supply limited because plants are shut down; old process, bulk, Minneapolis $63 for July and $59.50, August; solvent, bulk, Minneapolis $58 for July and $56.50, August.

Cincinnati: Demand poor; trend steady; supply adequate; new process $75; old process $77.

San Francisco: Demand fair; supply ample; $64.

Boston: Demand and supply limited; $77, nominal.

Los Angeles: Demand fair; trend steady; supply limited; local production, 29% protein $59.

Wichita: Demand fair; supply sufficient; 34% $75.50.

Philadelphia: Demand and supply fair; 34% $81.

Omaha: Demand slow; supply tight; 34% solvent $63.25, bulk, delivered Omaha basis.

Louisville: Demand slow; trend strong; supply normal; old process $80.75, up $4.50; new process $75.25, up $5.

Milwaukee: Demand good; supply fair; old process $79.50; new process $68.25.

Ft. Worth: Demand slow; offerings light; carlots, 34% extracted, July $81.75; pellets $2.50 premium.

Seattle: Demand slow; trend steady; supply ample; $75, delivered, carloads, 34% protein.

Minneapolis: Firm trend; good demand; poor supply; new process $58, bulk, July; old process $59.50.

Chicago: Demand fair; supply adequate; solvent $70@70.50; expeller $75.

New Orleans: Demand poor; trend steady; supply adequate; $80.50@81.

MALT SPROUTS

Milwaukee: Demand good; supply fair; odd weights $39; even weights $41.

Boston: Demand and supply limited; $42.50.

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $44.

Chicago: Demand fair; supply adequate; No. 1 $38.50.

New Orleans: Demand fair; trend steady; supply adequate; $37.50@39.

MEAT AND BONE MEAL

San Francisco: Demand good; supply fair; $2.20 a unit of protein.

Kansas City: Demand good; trend strong; supply not quite adequate; $127.50, 50% meat and bone scraps, sacked.

Cincinnati: Demand good; trend strong; supply very short; 50% meat and bone scraps $123, sacked, Cincinnati.

New York: Demand excellent; trend upward; supply poor; 50% $110, 55% $120, bulk; 50% $113, 55% $123, sacked.

Ft. Worth: Demand good; supply extremely light; meat and bone, 50% $117@120, f.o.b. or delivered Ft. Worth.

Boston: Demand active; supply spotty; $1.90 a protein unit; converted 50% $105.

Los Angeles: Demand good; trend firmer; supply limited; 50% protein $2.35@2.36 a unit.

Wichita: Demand good; supply sufficient; 50% $120, f.o.b. plant; 55%, no quotations, no offerings.

Omaha: Demand good; supply tight; 50% sacked 100's $125, Omaha basis.

Ogden: Supply average; $110, in 100-lb. bags.

Louisville: Demand strong; trend higher; supply light; $120@125.

Chicago: Demand fair; supply tight; 50% protein $112.50@120.

Buffalo: Demand firm; trend higher; supply scarce; $120 bulk, $125 sacked.

St. Paul: Very firm trend; terrific demand; poor production; $132@135 for 50% meat and bone meal.

St. Louis: Demand good; trend higher; supply limited; $127.

Seattle: Demand good; trend firmer; supply ample; $105, ex-warehouse, 50% protein.

New Orleans: Demand good; trend steady; supply sufficient; $104@109.

MILLFEED

Minneapolis: Good demand; firmer trend; nearby material scarce; bran $35@35.50, standard midds. $43@44.25, flour midds. $49, red dog $51@52.50.

Kansas City: Demand good; trend firmer; supply limited; bran $32.50@33.25, shorts $38.75@39.50, sacked; bran $28.50@29.25, shorts $28.50@39.25, bulk; middlings, bulk $38@38.75.

Wichita: Demand fair; supply limited; basis Kansas City: bran $30.75@31.25, shorts $36.50@37; bran advanced $3 and shorts $2.75, compared with the preceding week.

Ft. Worth: Demand good; limited offerings; carlots, burlaps, prompt, bran $40, gray shorts $46, delivered Texas common points; $4.50 higher on bran and $3.50 higher on shorts compared with previous week.

Chicago: Demand for millfeeds was very good during the week, reflecting decreasing supplies. The market was strong and gave every indication of somewhat higher prices during the period. Quotations: bran $36.50 @37, standard midds. $47@47.50, flour midds. $52@53, red dog $55@56.

Cincinnati: Demand poor; trend higher; supply adequate; bran $42, middlings $50.

St. Louis: Demand good; trend higher; supply short; bran $38@38.50, shorts $44.50 @45, sacked; bran $34@34.50, shorts $44.50 @45, middlings $43.50@44, bulk.

Omaha: Demand active; supply tight; sacked bran $33, Omaha basis; sacked gray shorts $42, Omaha; bulk standard midds. $39.50, Omaha basis.

Boston: Demand cautious; supply extremely irregular; bran $47, middlings $54.

Buffalo: The mixer business continued to be excellent. Sales continued to advance. Bran was up about $3, middlings up $5 and red dog up $1. Quotations July 16: bran $41.50@42, middlings $49.50@50, red dog $56.50@58; the bulk differential on both bran and middlings was $4.50.

New York: Demand excellent; trend upward; supply good; bran $49@49.50; standard midds. $56@57.

Philadelphia: Demand spotty; supply fair; bran $47.50; standard midds. $55; red dog $65.

New Orleans: Demand good; trend steady; supply sufficient; bran $40@40.75, shorts $46@46.75.

Memphis: Demand good; trend higher; supply scarce; wheat bran $39.50; gray shorts $46; standard midds. $46.

Louisville: Demand good; trend strong; supply ample; up $2.50@4 ton; bran $43.50, mixed feed $47.25, shorts $51.50, middlings $52.50.

Seattle: Demand fair; trend steady; supply limited; $38, delivered common transit points, carlots.

Ogden: Supply normal; to Utah and Idaho: red bran and mill run $35, middlings $40; to Denver: red bran and mill run $42, middlings $47; to California: red bran and mill run $42.50, middlings $47.50, f.o.b. San Francisco and Los Angeles.

Los Angeles: Standard mill run $44.50 @45, demand improved, trend steady, supplies ample; red bran $46@47, demand slow, trend firmer, supply ample.

San Francisco: Demand fair; supply ample; millfeed $45.50, red bran $50.50.

MINERAL FEED

Ft. Worth: Demand fair; supply ample; all-purpose granules $89, block $94; mineral phosphorus 6% granules $105, block $110; cattle-sheep mineral, 7% phosphorus granules $99, block $103, hog mineral phos-

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phorus 3½% granules $88, phosphorus 2% $78 (all in 50-lb. paper bags).

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Wichita: Demand good; supply insufficient; all-purpose with iodine, 50-lb. blocks $95, 100-lb. bags $90, f.o.b. plant.

Ogden: Supply normal; $110 in 500-lb. blocks; $98, granular, 50-lb. bags.

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $35, ex-warehouse.

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

MOLASSES

Buffalo: Demand fair; trend steady; supply good; 18½¢ gal., f.o.b. Albany.

St. Louis: Demand slow; trend steady; supply ample; 14½¢ gal., New Orleans.

Seattle: Demand fair; trend steady; supply good; $36, f.o.b. Seattle, tank car lots or truck lots.

Cincinnati: Demand fair; trend steady; supply adequate; 14½¢ gal., New Orleans.

Kansas City: Demand slow; trend steady; supply adequate; 14¾¢ gal., tank car, New Orleans for July, 14½¢ gal. for August.

San Francisco: Demand and supply good; $26, f.o.b. cars, Richmond, Cal.

Boston: Demand steady; supply plentiful; 18¼¢ gal. in tank cars.

Ft. Worth: Demand fair; supply sufficient; blackstrap 16¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $35.06, seller's market price on date of shipment.

New York: Demand and supply good; trend steady; blackstrap 18¢ gal., tank cars, tank wagons, f.o.b. New York.

Los Angeles: Demand good; trend improved; supply adequate; $25 bulk, f.o.b. tank cars; $25.25 bulk, f.o.b. tank trucks.

Memphis: Demand improved; trend firm; supply adequate; blackstrap 14½¢ gal., tank car, f.o.b. New Orleans and $21 ton, delivered Memphis, truck.

Louisville: Demand fair; trend firm; supply normal; 14½¢ gal., tank car lots, f.o.b. Gulf ports.

Milwaukee: Demand fair; supply good; blackstrap 13½¢ gal., f.o.b. New Orleans.

Minneapolis: Steady trend; moderate demand; adequate supply; 14½¢ gal., f.o.b. New Orleans; $34.50 ton, f.o.b. terminal.

Atlanta: Demand good; trend steady; supply limited; citrus $20, bulk, f.o.b. Florida producing points, immediate.

New Orleans: Demand slow; trend steady; supply ample; 18¢ gal., tank cars and trucks; 600-lb. customers' drums $9.62.

NIACIN

New York: Trend steady; $8 kilo, 10-kilo lots; $8.20 kilo, 5- and 2½-kilo lots; $8.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Boston: Demand fair; supply adequate; white pulverized $55; ground mixed $45.30; reground oat feed $21.

Ft. Worth: Demand slow; supply sufficient; oat millfeed $44.45; reground oat millfeed 3% protein, sacked $22.95; 8% protein, bulk $26.

Cincinnati: Demand fair; trend steady; supply adequate; reground oats $17; pulverized white oats $49; rolled oats $86.

Los Angeles: Demand fair; trend unchanged; supply adequate; pulverized oats, local production $57.

Philadelphia: Demand dull; supply fair; pulverized white $53.50; Canadian oat feed $33; domestic oat feed $25.

Memphis: Demand poor; trend steady; supply ample; 3½% protein, reground oat feed $19.50.

Louisville: Demand fair; trend stronger; supply normal; reground $22, steady; rolled $87.50, up $1; feeding $80.50, up $1; pulverized $52, up $1; crimped white $69.50, steady.

Minneapolis: Buying still rather cautious but more forward buying noted; trend steady; feeding rolled $80@83; pulverized $44.50; feeding oatmeal $70@71; reground $17; crimped $59.50.

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Seattle: Demand fair; trend easier; supply ample; $48, bulk, delivered, truck lots.

Chicago: Demand fair; supply adequate; reground oat feed $13.50; fine ground feeding oatmeal $70@73; feeding rolled oats $82@84.

OYSTER SHELL

San Francisco: Demand fair; supply ample; local $15, eastern $26.

Cincinnati: Demand fair; trend steady; supply adequate; $21.75.

Boston: Demand and supply steady; in paper $25.30.

Louisville: Demand good; trend steady; supply normal; in 50-lb. bags $23.17, 50-lb. bags $23.42, 25-lb. bags $25.67.

Los Angeles: Demand steady; trend unchanged; supply ample; $14.80.

Seattle: Demand and trend steady; supply good; eastern $36, delivered, carlots.

New Orleans: Demand good; trend steady; supply plentiful; $14.80@15.

PEANUT OIL MEAL

Milwaukee: Demand good; supply fair; 26%, $42.50.

Atlanta: Demand fair; trend strong; supply limited; 40% $70, sacked, immediate.

PEAT MOSS

San Francisco: Demand fair; supply ample; $3.75 bale.

Boston: Demand and supply seasonally steady; $3.15 bale in carlots.

Seattle: Demand fair; trend easy; supply good; $2.70 bale, delivered, truck lots.

Chicago: Demand light; supply ample; $3.60@3.70, standard 7½ cu. ft. bale.

Philadelphia: Demand slow; supply light; $2.98, f.o.b. pier.

Los Angeles: Demand and trend steady; supply adequate; Canadian 6.1 cu. ft. bales $3.85.

POTASSIUM IODIDE, U.S.P.

New York: Trend steady; granular or crystals $1.90 lb. in 250-lb. drums, $1.92 lb. in 100-lb. drums, $1.95 lb. in 25-lb. drums; 99% KI in calcium stearate or carbonate mixtures, $1.81 lb. in 250-lb. drums or 200 lb. lots, $1.83 lb. in 100-lb. drums, $1.86 lb. in 25-lb. drums; f.o.b. New York, New Jersey or Pennsylvania, freight allowed to destination on 100-lb. drums or larger packings.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures, 250-lb. drums $1.81; 200 lb. in 100-lb. drums $1.83; 25-lb. drums $1.86, f.o.b. Cincinnati.

POULTRY BY-PRODUCTS

Ft. Worth: Demand good; supply very limited; 55% protein $95, f.o.b. north Texas plant.

Boston: Demand very active; supply spotty; $119, f.o.b. eastern shipping points.

Los Angeles: Demand good; trend unchanged; no offerings; $2 a unit of protein.

Atlanta: Demand good; trend strong; supply limited; $112.50, sacked, immediate, f.o.b. Alabama and Georgia producing points.

Salisbury, Md.: Good demand; tight supply; $102, bulk, f.o.b. producers' plants.

RIBOFLAVIN

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.3S to 1S gm./lb. mixtures, freight prepaid or paid to destination.

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in 3.3S to 1S gm./lb. mixtures, freight prepaid or paid to destination.

RICE BY-PRODUCTS

San Francisco: Demand fair; supply ample; bran $45; polished $49.

Ft. Worth: Demand fair; supply moderate; carlots, rice bran $29@30, prompt shipment, f.o.b. south Texas rice mills; hulls $2, f.o.b. mills.

Los Angeles: Demand fair; trend steady; supply limited; bran, California production, high fat content $52.

SCREENINGS

Minneapolis: Unsettled market; fair demand, but lack of supplies and buyer resistance are noted; lights $4.10, mediums $11@18, heavies $19@30; Canadian ground $23; Canadian, bulk $15; flaxseed screenings $30; oil type flaxseed screenings $42 basis 15%.

Chicago: Demand fair; supply adequate; ground grain screenings $29; Canadian, bulk $19.

Buffalo: Demand good; trend steady to higher; supply fair; ground and sacked $29, New York, lake and rail; unground, bulk $23.75, New York.

Ft. Worth: Demand nil; supply sufficient; 13% protein, ground $26, nominal.

Cincinnati: Demand fair; trend steady; supply adequate; Canadian $26.50.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.85@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.45.
St. Louis: $24.14@24.27.

SORGHUM

Los Angeles: Demand steady; trend easier; supply ample; milo $2.55 cwt., bulk.

Ft. Worth: Demand fair; supply sufficient; carlots, bulk, No. 2 yellow milo $2.30@2.33, Texas common points.

SOYBEAN OIL MEAL

Minneapolis: Very firm trend; strong demand; nearby material very scarce; $82.25 for nearby, $79.75 August.

Chicago: Demand was good for soybean oil meal during the week ending July 16. The market was strong and prices remained steady during the period. Quotations: 44% soybean oil meal $77; no 50% meal is available.

Decatur: Demand good; supply tight; 44% bulk, unrestricted, August shipment $66@66.50; 50% none available for nearby.

Seattle: Demand and trend steady; supply ample; $104, delivered, carlots.

St. Louis: Demand good; trend higher; supply tight; $80.

Ft. Worth: Demand good; limited offerings for nearby shipment; carlots 44% $92 immediate, $87.50 scattered August; truck delivery $86, July.

Boston: Demand active; supply fair; 44% $64; 50% $78, both bulk, f.o.b. Decatur.

Cincinnati: Demand poor; trend higher; supply adequate; $67, bulk, Decatur.

San Francisco: Demand fair; supply ample; $97.95.

Kansas City: Demand good, through not broad; trend steady to firm; supply limited; Kansas City and western shipment, bulk, Decatur for July $72@73; unrestricted, bulk, Decatur $73@74.

Los Angeles: Demand slower; trend firmer; supply tighter for nearby; $101.95@102.45.

Wichita: Demand good; supply adequate; 44% $83, 50% $94, f.o.b. Wichita.

Philadelphia: Demand spotty; trend unsettled; supply fair; 44% $66, bulk, Decatur.

Louisville: Demand slow; trend strong; supply normal; $80.43, up $4.50.

Omaha: Demand excellent; supply tight; 44% solvent $78.25, bulk, delivered Omaha basis.

Ogden: Supply average; $81@86.

Milwaukee: Demand good; supply fair; $70, bulk, Decatur.

Memphis: Demand good; trend firm; supply tight; prime 44% solvent $77, sacked, f.o.b. Memphis.

Atlanta: Demand good; trend strong; supply limited; 44% $85, sacked, immediate.

New Orleans: Demand good; trend weaker; supply adequate; 44% $76@76.50.

TANKAGE

Kansas City: Demand good; trend strong; supply not quite adequate; $122.50@127.50, 60% digester, sacked.

Ft. Worth: Demand fair; supply extremely light; 60% digester $117@118, f.o.b. Ft. Worth.

St. Louis: Demand good; trend higher; supply limited; $127.

St. Paul: Very firm trend; very strong demand; extremely tight supplies; $130@135.

Chicago: Demand fair; supply tight; 60% protein $117.50@120.

Cincinnati: Demand good; trend strong; supply fair; 60% digester $120, sacked, Cincinnati.

Louisville: Demand very good; trend strong; supply light; some companies oversold and prices withdrawn; $120@125.

Omaha: Demand good; supply tight; $125, Omaha basis.

Wichita: Demand good; supply insufficient; 60% $120, f.o.b. plant.

New Orleans: Demand and supply good; trend steady; $120@122.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.70; in 25-lb. drums $1.75; freight allowed to destination.

New York: Demand and supply good; trend steady; 100-lb. drums $1.70 lb., 25-lb. drums $1.75, f.o.b. manufacturing plants, freight allowed and goods insured to destination.

Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.70 lb., 25-lb. drums $1.75, f.o.b. manufacturing plants, freight allowed and goods insured to destination.

WHEAT GERM MEAL

Buffalo: Demand and supply fair; trend steady; commercial grade $74, sacked, f.o.b. Buffalo.

Chicago: Firm trend; good demand; supplies scarce; $90, nominal.

New Orleans: Demand good; supply adequate; trend strong; $79@80, cottons.

MARKET

(Continued from page 1)

Another factor in the commodity markets which the daily active pit brokers ignore is the fact that there will be a farm bill this session of Congress notwithstanding reports to the contrary.

The bill probably to be enacted carries lower levels of support for corn; elimination of acreage allotments; a deep price reduction in the support level for cotton, as much as 4¢ lb. for that commodity in the domestic market; complete freedom of the rice industry as to acreage allotments at a lower level of price support.

In addition, the Senate bill will also, according to forecasts, carry an amendment for an extension of the wool bill and re-approval of the Public Law 480 extension without any liberalization of the present tight restrictions on barter operations.

This Senate bill will be the legislation on the farm front for this Congress, if any. The only obstacle is the chairman of the House Agriculture Committee, who has shown a strange affinity for the barter provisions of PL 480 which does not seem to have any connection with farm problems.

Cotton is the major issue in the farm bill. Cotton, according to all congressional sources here, must be aided through enlarged acreage for at least the 1959 crop year. If cotton is stuck with the current law on the basis of the cotton crop report to be issued on Aug. 8, it may mean that the price support level for cotton may be increased, but cotton acreage would be reduced, and at the same time if Congress fails to enact an extension of Public Law 480, the advance of the price support percentage level of cotton may not be attained.

Cotton is king—not at the historic level of 5¢ lb.—but it is king now in the breakdown of the congressional voting on the Senate farm bill.

Another juicy item of political potence is found from rice industry congressional sources who this week tell Feedstuffs that they do not intend to stand behind the House Agriculture Committee chairman to beat the Senate farm bill which contains a provision which the rice industry wants and needs. A congressman influential in the rice bloc says that the rice area congressman will refuse to go along with the House Agriculture Committee chairman and will take the Senate bill. They say that they have no interest in the fascination with the enlargement of authority for barter deals under PL 480.

In fact, it must be repeated that USDA will not stand still for any farm bill which would arbitrarily order it to expand PL 480 barter deals, and any farm bill—even if it contained other most favorable provisions for other commodities—will be vetoed.

USDA has conclusive proof that barter dealers have been offering U.S. surplus agricultural commodities—cotton, wheat and feed grains—in world markets at discount prices on the basis of letters of offer in their hands.

But there will be a farm bill—probably the Senate bill without any material amendments. An amending proposal to enact a two-price system for wheat or the Humphrey amendment for the so-called "self-help" bill for the dairy industry will not be accepted in the Senate.

The catch-all amendments so popular in local communities will fail here when the Senate takes up the farm bill. The Democratic floor leader, Lyndon Johnson, said that the farm bill will be on the Senate calendar as quickly as that body can clear the track for its consideration. It is now probable that it may be a matter of Senate consideration by mid-week, barring, of course, a worsening of the Middle East situation.

No matter what can happen now, it should be the guidepost of all buyers that if the worst comes to pass—war—it probably will mean that the federal government will roll back prices to some date prior to the landing of the marines in Lebanon. And if the government must move on a price control rationing front now, it may be a final operation for all time.

Up to this time there is no panicky feeling here over the Lebanon landing of the marines.

Probably the best statement made in Congress came from the Vermont Republican Senator, George D. Aiken, who commented, "This is the showdown."

Correction

The feed mill of the Farmers Cooperative Elevator Co. at Luther, Iowa, is equipped with a Marion mixer. An article on the plant in the June 14 issue of Feedstuffs erroneously identified the mixer as being of another make. The firm has had the Marion mixer since the mill was built in 1956.

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INTEGRATION

(Continued from page 1)

"I have a firm conviction that the family-type poultry farm is fundamentally the most efficient," he declared. "The advantages of extremely large operations over 10,000 birds have been exaggerated. These large operations have inefficiencies and a lack of flexibility in labor costs which are only partially offset by economies in volume buying and selling. This is not to say that there will not be some successful large size operations."

Prof. Reed predicts the future will see the near demise of the small farm flock, that there will be quite a few large business-type flocks of about 100,000 layers, but the bulk of commercial production will be in the 2,500-10,000-bird flocks.

He added, however, that in 1954 flocks under 400 layers produced about one half the eggs. Farms having more than 1,600 birds produced about 25% of the eggs in 1954, he noted.

Prof. Reed told the poultrymen that building up sufficient capital, rather than expansion, should be their first objective. "People who lack budgeting ability will end up either broke or working under a contract," he said.

He indicated that northeast poultrymen should not be overly worried about competition from western grain states and the South. He said egg production in north Atlantic states has jumped 31% since 1945 while output has dropped 3% and 4%, respectively, in the grain states and the South.

Another speaker was Hermon I. Miller, poultry division director in the U.S. Department of Agriculture. He described a newly-enacted law requiring all poultry products entering commerce to be inspected for wholesomeness. He said the law places the same requirement on poultry meats as has been on red meats for more than 50 years.

Egg Publicity

A Cornell professor set out to rescue the egg from what he called "unwarranted adverse publicity." Dr. Robert C. Baker, poultry husbandry department, New York State College of Agriculture, said that although cholesterol is present in eggs, the level of cholesterol in the blood, according to the best scientific knowledge, is not significantly influenced by the amount present in food eaten. He declared that eggs help prevent cholesterol deposits which may cause heart trouble.

"Although additional research is needed, it has been found that dietary sources of unsaturated fats (usually the 'soft' fats, liquid at room temperature) tend to lower the level of blood cholesterol. Saturated fats (those usually 'hard' or solid at room temperature) in the diet tend to raise blood cholesterol levels," he explained.

Dr. Baker declared that eggs are high in unsaturated fatty acids which are believed to help prevent cholesterol deposits from developing in the body.

He pointed out that eggs contain linoleic and linolenic acids which, in addition to their beneficial effects upon blood cholesterol levels, are essential nutrients.

Value of Turkey Meat

"The turkey insists on having more protein and vitamins in his feed than other birds, but he gives it right back at the dinner table," said Dr. M. L. Scott, New York State College of Agriculture.

He commented that one turkey sandwich containing 4 oz. of meat will supply more than one half an adult's daily protein needs, and that the protein is of high quality.

Dr. Scott said also that turkey meat is low in calories — "those weight-building units that we consume in excess." The significance of this, he noted, is that many foods that are high in protein contain a lot of calories, too.

As for vitamins, the poultry nutritionist says 4 oz. of turkey meat will provide more than one third of the daily riboflavin and niacin requirement of an adult or teenager.

"Besides all this," Dr. Scott said, "turkey meat contains a lot of unsaturated fatty acids. This may not sound very appetizing, but doctors say this is the kind of fat that is best for your health."

Cod Liver Oil

Dr. L. C. Norris, poultry nutritionist at New York State College of Agriculture, said cod liver oil took the poultry industry out of the barnyard and put it into the modern poultry house, making it possible to raise chicks the year around.

"Cod liver oil, added to poultry feed, cured leg weakness—a condition that plagued most poultry farms 35 years ago. This discovery is perhaps the first significant milestone in poultry nutrition," Dr. Norris said.

Dr. Norris traced a 50-year history of research in poultry nutrition, then took a look into the future. He said scientists will place greater emphasis on how nutrients are related to growth and production rates, and to climate, disease, and drugs.

"More work will be done on the energy requirements for poultry growth, fattening and egg production, and on the biochemical function of various nutrients," he said.

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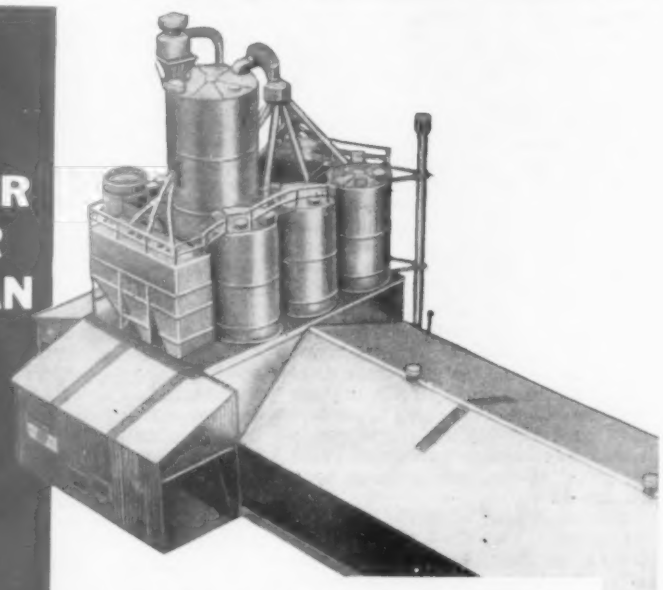

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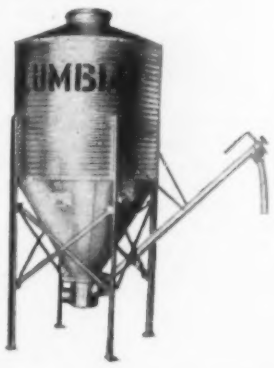

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RESEARCH

(Continued from page 6)

basic grain mix. The alfalfa was pelleted and fed separately. The roughage ration consisted of peavine silage with a crude protein content of about 11%, fed free choice. Animals on the wintering ration received about 3.5 lb. of concentrate a day. Those on a fattening ration received about 7.5 lb. a day.

Further experiments are needed to determine the value of pelleted alfalfa for cattle of various sizes on rations containing large amounts of grain.

Stilbestrol: Stilbestrol implants, used to increase rate of gain of beef animals, need not be a one-shot affair, scientists say. Researchers from Oregon and Wyoming showed that where one shot of the growth-boosting drug is good, two are even better.

Dr. David C. England, Oregon State College, told the group about four experiments in which weaner steers, kept in feedlots up to 250 days, were re-implanted with stilbestrol at intervals of 70 or 90 days. The steers received a maximum of three treatments.

All the animals that were re-implanted gained more rapidly throughout the entire experiment than those receiving a single treatment. Animals implanted three times gained more rapidly than animals implanted twice. Dr. England also tried various combinations of dosage levels, but in no case did the total dosage exceed 60 mg. When the animals were first given a dose of 30 mg. followed by a dose of 15-18 mg., or vice versa, the steers made greater average daily gains than if a single 30 mg. implant had been made. Best gains of all during the early feeding period, on a two-dose schedule, were made with an initial 18-mg. dose followed by a 30-mg. dose.

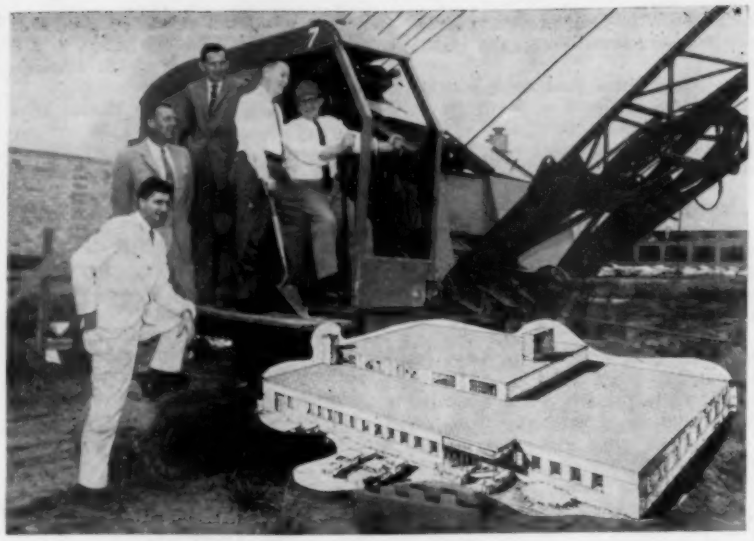
Hormones paid off in the Wyoming experiment, too. C. J. Kercher reported on the effect of hormones given to cattle on pasture, before going to feed lots. He found that range steers implanted once gained more weight than steers never given hormones, and that steers implanted twice, once on grass and again in the feedlot, gained faster than steers implanted just once, whether on the range or in the feedlot. He also pointed out that the hormones did not cause any adverse side effects, particularly in respect to body conformation.

Beef Cows: No harm will come to pregnant beef cows fed low-quality roughage for a limited period as an emergency ration, according to Washington State College animal scientists. W. K. Roberts said the limited energy of a wheat-straw ration had no important effect on body weight and condition of cows up to one month after giving birth. All cows in the trial produced calves.

Wintering Cattle: Ranchers in the high Western range country may find new profits in wintering of cattle—normally regarded as merely a "maintenance" operation, researchers said. Feeding studies during the past winter with weaner steer calves indicated that a combination of phosphorus-fertilized flood meadow hay and protein supplement can increase the value of gains by four times the extra feed costs, reported Oregon State College scientists.

Spaying Heifers: The problem of whether or not cattlemen should spay heifers was discussed by University of Wyoming scientists in reporting a two-year study of feedlot performance. They found that there is little difference between open and spayed heifers in ability to gain. Spayed heifers gained 1.79 lb. a day during a 199-day trial while open heifers gained 1.96 lb.

The investigation, headed by C. J. Kercher and P. O. Stratton of Wyoming, was made because, on some markets, spayed heifers command a slight premium over non-spayed females. Under certain range conditions, pointed out the report, it is impossible to guarantee open heifers to feeders unless they have been spayed.



GROUND-BREAKING CEREMONIES—Superior Separator Co., Hopkins, Minn., recently held ground-breaking ceremonies for its new research and development building (architect's drawing inset) which is being constructed across the street from the main plant in Hopkins. Left to right are William P. Edmunds, general manager, process machinery division; C. F. Pierson, president; A. A. Kole, general manager, Farmhand division; Robert K. MacGillvray, engineer, and C. L. Martin, director of research and development.

At the same time, packers and chain stores have complained of injury to loin area on spayed heifers. This, it was claimed, caused difficulty in aging carcasses uniformly.

Only small differences between open and spayed heifers in dressing percentage, carcass measurement, and muscle and fat were found by the Wyoming team. No evidence was found of loin damage from spaying.

DAIRY CATTLE: Several reports on dairy feeding were part of the program at the dairy science group's meeting.

Grain Feeding: It may not be true that dairy cows should be fed grain according to their rate of milk production, one researcher indicated. New evidence that lactating cows on good pasture may do as well on a reduced amount of grain was presented by E. P. Smith, department of dairy production, Montana State College. He recently completed a trial that revealed that when cows are fed grain at a lower level, they eat more pasture forage and obtain their required nutrients from this cheaper source.

Twenty-eight cows were divided into equal groups for the trial. One group received 2 lb. of grain per day while the other group received grain at a rate of 1 lb. of grain daily for every 3 lb. of fat-corrected milk produced above 20 lb. Other than the grain feeding, the two groups were managed exactly the same. They were on the same lush pasture and were milked at the same time.

The test showed no significant difference in milk production and no real difference in the weight of the livestock at the end of the 84-day test. The feed cost per 100 lb. of fat-corrected milk for the group receiving 2 lb. of grain was 62¢, in contrast with 82¢ for the other.

Pelleted Hay: Pelleted alfalfa is still too costly to justify its use in a dairy cattle ration, according to recent feeding trials conducted by University of Arizona scientists. R. G. Fossland compared the use of pelleted immature alfalfa with silage, hay, and straw. With co-worker J. B. Fitch, he found that lactating cows maintained body weight on any of the rations, and that no significant differences in milk production resulted. The researchers concluded that the pelleted alfalfa was a good, though expensive, roughage when supplemented with straw or silage.

Molasses: Feeding molasses to dairy cows just before milking time will not cause an off-flavor in the milk if the dairyman sticks to common feeding practices, reported two University of California scientists. The use of a concentrate mixture containing about 10% molasses is safe, according to S. W. Mead and Walter L. Dunkley. As much as 1 lb. of molasses (or 10 lb. of a 10% molasses mixture) may be fed at milking time without causing objectionable off-flavor in the milk. Larger amounts, however, should not be fed during the period (4.5 hours) before milking, but may be fed afterward.

Tranquilizers: Tranquilizer drugs will calm down nervous cows at milking time, according to Gerald Ward of Colorado State University. Dr. Ward said an injection of 25 cubic centimeters of Vesprin will keep a cow quiet for about 24 hours. Handling nervous dairy animals at milking time takes valuable time, and is sometimes dangerous. The problem is especially acute with first-calf heifers who are just coming into milk production.

Dr. Ward's experiments covered a period of four months. He reported no noticeable effect on either milk production or butterfat content. When a cow received a heavy dose of the drug, however, she became sluggish and feed consumption dropped off. As a result, milk production was low until effects of the tranquilizer wore off.

Silage: How can dairy farmers get silage with greater feed value? One method is to use a plastic film over a bunker silo, say researchers at the Western Washington Experiment Station. Overlapping plastic strips covered with sawdust keep leaching and spoilage loss at a minimum.

Another way to get a more efficient feed is to use wilted grass silage instead of direct-cut forage. A one-year comparison study of the two forages, made in the Pacific Northwest, showed that direct-cut forage stored in tower silos suffered greater dry matter loss and was less appetizing to heifers used in a feeding trial.

The study was conducted by F. R. Murdock, A. S. Hodgson and J. R. Harris, Puyallup, Wash.

SWINE FEEDING: Montana and Alberta scientists reported on some swine feeding research.

Sow Study: Scientists at Montana State College at Bozeman fed a ration of 50% suncured alfalfa hay, 40% barley, and 10% protein supplement to one group of gestating-lactating sows. The supplement was made up of equal parts of meat meal and soybean meal. Another group received a plain diet of half alfalfa, half barley.

Although the unsupplemented group grew as well, they consumed more feed than the supplemented group, said A. E. Flower.

"The commercial choice between the two rations will be dictated by the total cost of the feed consumed," concluded Prof. Flower, who with O. O. Thomas conducted the nutrition test at Bozeman.

One sidelight of the trials was that the alfalfa appeared to dilute the grain enough so that young and old sows ate together without fighting. This is an important factor, said Prof. Flower, in mechanized swine production.

Restricted Feed: One way to produce a streamlined porker is to restrict his diet, said two Canadian scientists. J. P. Bowland and R. T. Berg of the University of Alberta said that twice-a-day feeding reduces the amount of feed required by the pigs—and reduces the pig as well.

The partially-restricted feed intake of bacon-type pigs offers a practical method of improving carcass quality over self-feeding, said the Canadian scientists.

Three strains of swine were used in the experiment, said Mr. Bowland. It was discovered that the merits of different breeds can be appraised with equal accuracy at any given level of feed.

LAMBS: Arizona scientists told of a recent lamb feeding project.

Cotton gin trash—waste material from cotton gins—can be used with varying amounts of concentrates to fatten market lambs, said University of Arizona researchers.

White-faced feeder lambs were fed varying proportions of gin trash, alfalfa hay and concentrates by Arizona animal scientists. All lambs were implanted with stilbestrol.

According to E. S. Erwin, there were no important differences in rates of gain among lambs fed the experimental rations: "Our data suggest that, within limits, cotton gin trash can be fed with varying amounts of concentrates to lambs for similar rates of gain. The amount of gin trash and the level of concentrate for efficient production of lamb gain would be governed entirely by relative feed prices."

Western Canada Receives Rain

WINNIPEG — Rains blanketed western Canada last weekend. The drouth has been broken in Saskatchewan, but many districts will require further good rains soon as heaviest precipitation generally did not fall in areas where most needed.

Most cereal grains are either headed or rapidly coming into head and prospective yields over the three prairie provinces are as variable as the moisture picture. However, a much greater area has vastly improved moisture conditions than two weeks ago and good filling of heads is in prospect. While production will be well under a year ago, farmers are pinning their hopes on quality.

Canada's mountain of wheat is being reduced and, with this year's harvest certain to be short of normal domestic and export requirements, the pile will be again slashed.

Buffalo Feed Firms Promote Summer Sales

BUFFALO—A family-sized picnic grill with a retail value of $3.50 is offered in a summer dairy promotion of Maritime Milling Co., Inc., and Park & Pollard Co., Buffalo. The grill is offered free to dairymen who purchase 20 bags of dairy rations from either of the firms.

Customers forward the tags to Buffalo, where the grills are shipped by return mail. The offer runs from June 15 to Aug. 1. The promotion is the first of this type ever offered by Maritime, which purchased Park & Pollard in 1956. The company reports a good response.

MARKETS

(Continued from page 2)

mately 25% less than last year, which was a very short year from supply standpoint.

Grain crops are reported to be unhurt so far from excessive rains. However, a spell of good, dry weather would be most welcomed by all producers. Reports indicate that southeastern corn has done very well, and a bumper crop is expected for the new season.

Central States

Feed manufacturers generally agree that feed business is not as brisk as the month of June but that orders still are coming in at a fairly good rate.

Most mills were operating on a five-day basis during the week, with some on only four days, but this appeared to be the exception rather than the rule. Ingredient prices remained firm during the period, climbing somewhat higher. It was thought if this situation continues much longer, it would have a definite bearing on formula feed sales.

Turkey feeds were picking up better than last week and other types of feeds continued in fairly good demand. It was believed that as long as feeders continued to receive good returns on their products, they would continue to feed at a good pace.

South Central

Formula feed business continues to hold at a high level although some mixers felt that there was less urgency to the buying this week. The steadily advancing price of their product was pointed to as fostering the more cautious approach to inventory accumulation by their dealers. As yet, though, surprisingly few adverse comments on the higher prices have been relayed to the mills from feeders.

Concern was expressed over the effect of the substantial boost in price lists that will be required by the soaring ingredient costs induced by the Mid-East crisis. The thought was advanced however, that a renewed buying surge may develop when the trade learns of the coming increases.

Hog and pig feed sales were at the top as volume getters, while pullet grower and broiler feeds maintained a substantial pace. Operations were on a five day basis generally although some mills found it necessary to keep operating on Saturday. Night shift production on the pellet mills was quite common as capacity of these units seldom seems equal to the demand.

Ohio Valley

The customary mid-summer slump in sales of formula feeds in the Ohio Valley has failed to develop up to this week, and it appeared that business will continue brisk through the remainder of this year, despite the availability of huge tonnages of farm-crop feeds.

This pleasing prospect is indicated by the fact that a 13% increase in the fall pig crop is anticipated, with a large percentage of other livestock on valley farms being withheld from the market for breeding and the resultant inventory expansion.

While some fear has been expressed that increased formula feed prices might result in curtailed buying, there has been no evidence of this in this area, largely because of the continuing very satisfactory feeding ratios. Despite the profitable marketing situation, animal receipts at area stockyards continue light, with the small supplies posing serious problems for producers of such ingredients as meat and bone meal and tankage.

Another favorable factor in the over-all picture is the improving water situation. During the first three months of this year, average precipitation throughout the valley was nearly 2 in. below normal; but, during the second quarter, rainfall averaged nearly 1 in. above normal, and has continued into July at that rate. With the underground water table now at its highest level in several years, farmers appear assured of ample water supplies for both crops and pasturage, as well as for animal consumption.

Pacific Northwest

Feed ingredient quotations ruled stronger during the week's feed market trading under the influence of a soybean meal price advance of $5.50 ton along with moderate quotation advances for animal proteins and fish meals and a steady to firm trend for most feed grains.

Wheat millfeed prices were barely unchanged during slow dealings at Portland and Seattle with the trade reporting a draggy domestic demand, but some renewed export inquiry at the close.

Meat and bone meal prices advanced $2.50 ton with light offerings and soybean price advances a factor.

Dehydrated alfalfa pellet meal of 20% protein test advanced $1 ton while feed corn listings moved 50¢ to $1 ton higher. Other feed grains held unchanged throughout the trading period.

Demand for feeds held fairly steady at Portland and Seattle as the reflection of seasonally good broiler chicken and turkey poult feed business.

Dairy feed sales were still maintained at a slow pace, but the previous week's drying weather reduced available green pasture feeds throughout most of Oregon.

Portland egg prices to producers continued on the strong side during the period with A large listings gaining 2¢ doz. and AA grade mediums and smalls up 1 to 2¢ at the various receiving plants.

Poultrymen made sales at the close at 42 to 44½¢ for AA large eggs with A grade large 40¢ to 43¢ and AA mediums at 34¢ to 37½¢.

Fed steer prices held unchanged with choice ones bringing $27.75 to $28.50 cwt. at North Portland during the week.

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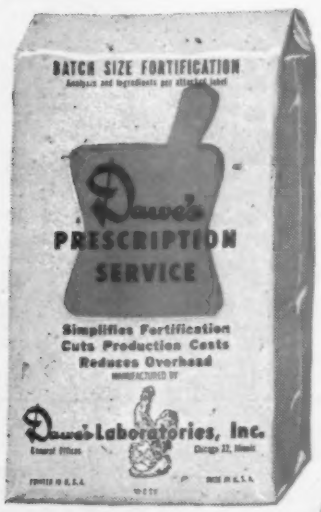

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